VOL. VI.—PART I.] [FEBRUARY.

HOOKER'S

ICONES PLANTARUM;

OR,

FIGURES, WITH DESCRIPTIVE CHARACTERS AND REMARKS, OF NEW AND RARE PLANTS,

SELECTED FROM THE

KEW HERBARIUM.

FOURTH SERIES.

EDITED FOR THE BENTHAM TRUSTEES BY

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C.M.G., C.I.E., LL.D., M.A., F.R.S.

Director, Royal Gardens, Kew.

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OR VOL. XXVI. OF THE ENTIRE WORK.

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M.S. del. et lith.

Furcræa macrophylla. Baker.

Plate 2501.

FURCRÆA MACROPHYLLA, *Baker.*

Amaryllideæ. Tribe Agaveæ.

F. macrophylla, *Baker* (*sp. nov.*); species ex affinitate *F. cubensis* et *F. Selloæ*, sed multo major.

Caudex brevis, 1–2 ped. altus. *Folia* dense rosulata, ensiformia, rigide coriacea, viridia, 6–7 ped. longa, medio 3–5 poll. lata, basi 2 poll. lata et $1\frac{1}{2}$ poll. crassa, e medio ad apicem et basin attenuata, prope basin valde incrassata, costa faciali prominente prædita, facie laevia, dorso scabra, aculeis marginalibus remotis magnis uncinatis pungentibus apice corneis rubro-brunneis. *Flores* in paniculam laxam amplam deltoideam dispositi; inflorescentia cum pedunculo 25–30 ped. longa, ramulis fructiferis et bulbilliferis. *Perianthii* segmenta lineari-oblonga, ovario æquilonga. *Stamina* quam perianthium triplo breviora, filamentis valde incrassatis. *Ovarium* cylindricum, glabrum, sursum attenuatum, 1 poll. longum. *Fructus* oblongus, trisulcatus, 2 poll. longus et 1 poll. diametro.

West Indies or Central America.

This plant is known only from the Bahamas. Leaves of it were sent to Kew in 1889 by Mr. J. H. Hart, F.L.S., Superintendent of the Royal Botanic Gardens at Trinidad, who had received them from the Bahamas, through Sir William Robinson, Governor of the Colony and formerly also of the Bahamas. At the beginning of 1896, Dr. Morris, during a short visit to the Bahamas, made a collection of leaves, flowers, fruit, and bulbils of this interesting plant, thus supplying full material for its description. He found it only in the island of New Providence, as a garden plant. It is probable, therefore, that it has been introduced into the Bahamas, and is not a native of those islands. When fully developed, the plant is of a very striking character. It is the largest species of *Furcræa* known. So far it has not been cultivated for its fibre. Dr. Morris also brought with him fifty young plants, which are now under cultivation at Kew.—J. G. Baker.

Fig. 1, plant, about $\frac{1}{30}$ of natural size; 2, leaf; 3, bulbil; 4, flower from which the perianth has been removed; 5, stamen; 6, pistil; 7, capsule.—1, 4, 5 *and* 6 *enlarged*; 2 *reduced*; 3 *and* 7 *natural size.*

H. Bolus del. M.S.lith.

Nemesia Bodkinii, Bolus.

Plate 2502.

NEMESIA BODKINII, *Bolus.*

Scrophularineæ. Tribe Hemimerideæ.

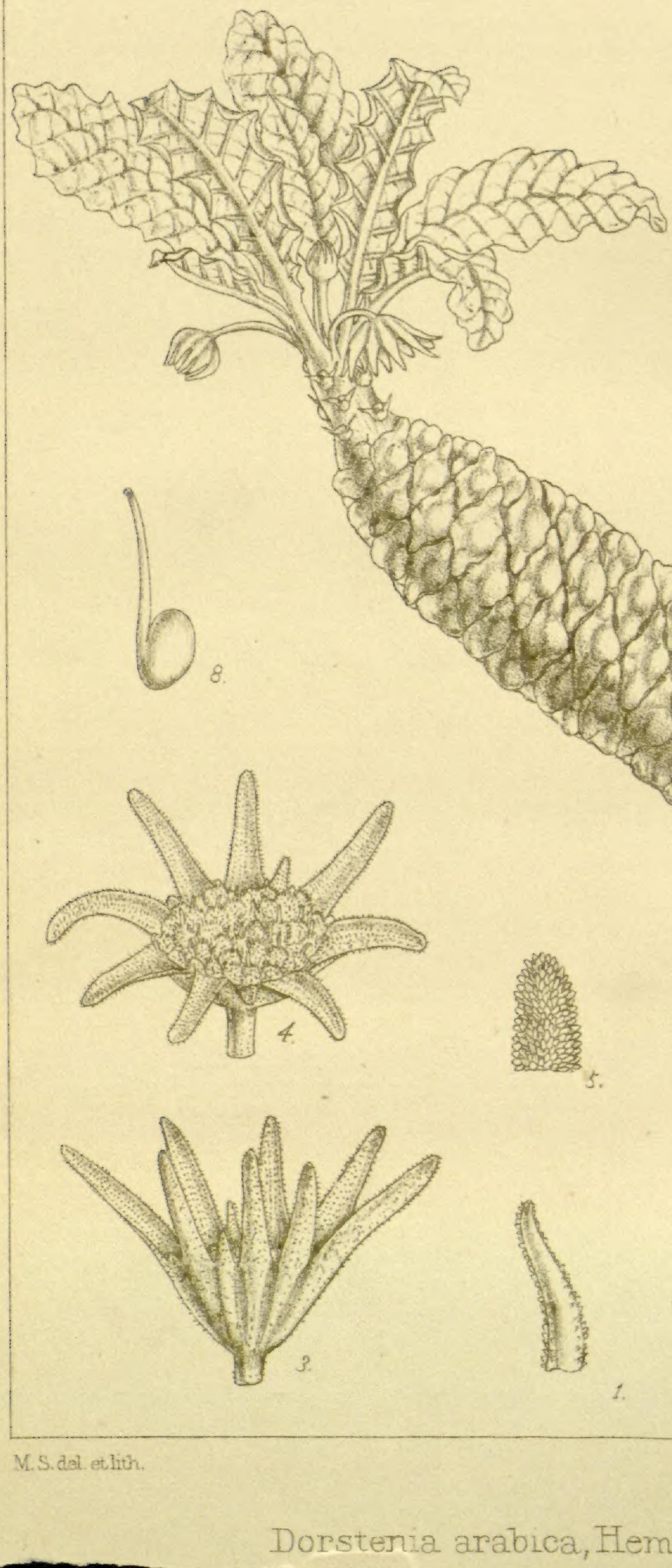
N. Bodkinii, *Bolus* (*sp. nov.*); corollæ fauce late aperta, tubo calcareque valde inflatis a congeneribus distincta.

Herba annua, spithamea, basi lignosa, pedicellis calycibus corollæ fauceque pubescentibus exceptis glabra. *Rami* adscendentes, oppositi, decussati, angulati, foliati. *Folia* sessilia vel infima petiolata, lanceolata vel linearia, acuta, grosse dentata, crassa, $\frac{1}{3}$–1 poll. longa. *Racemi* terminales, laxe pauciflori, pedicellis ebracteatis, 6–8 lineas longis. *Corollæ* tubus inflatus, fauce hiante; labium superius majus, laciniis 4 rotundatis inter se æquilongis; labium inferius oblongum, integerrimum; calcar conicum, inflatum, majusculum apice emarginatum, limbo subaequilongum, tubo cum calcare 8 lin. longo. *Capsula* generis, matura haud visa.

Cape Colony: south-western region, on mountain slopes with a northern aspect, above Tulbagh Kloof, at 1,000–1,200 ft., *Bodkin*; *Bolus*, 8401.

The very open throat, inflated tube, and unconstricted continuous spur, would seem to separate this plant from the majority of the species of this genus. But it is connected by *N. strumosa*, Benth. (*Bot. Mag.* t. 7272) which exhibits similar peculiarities, though in a less degree. The flowers are remarkable in their colour, being of so dark a red-purple as to be nearly black. We are indebted for its discovery to Prof. A. Bodkin, of Cape Town.—Harry Bolus.

Fig. 1, a flower detached; 2, ditto, the corolla removed and the two anterior calyx-lobes spread out; 3, the corolla; 4, the same laid open; 5, stamens in position; 6, one of the longer and 7 one of the shorter stamens; 8, calyx and immature capsule; 9 and 10, different leaves.—*All except* 1, 9 *and* 10 *enlarged.*



6.

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2.

M. S. del. et lith.

Dorstenia arabica, Hemsl.

Plate 2503.

DORSTENIA ARABICA, *Hemsl.*

Urticaceæ. Tribe Moreæ.

D. arabica, *Hemsl. (sp. nov.)*; *D. radiatæ* proxima, sed differt foliorum delapsorum cicatricibus creberrimis, foliis basi cuneatis bullatis supra nitidissimis, receptaculis minoribus.

Caulis erectus, simplex, carnosus, circiter 4 poll. altus et 1 poll. crassus, apice tantum foliiferus, infra folia tuberculatus, id est foliorum stipularum et pedunculorum delapsorum cicatricibus obliquis confluentibus valde incrassatis confertissimis ornatus. *Folia* petiolata, subcarnosa, undique minute sparseque papillosa, oblanceolata, cum petiolo brevi 1½–2 poll. longa, deorsum attenuata, valde sinuato-lobulata, bullata, supra atro-viridia, lucida, venis costaque impressis, subtus pallidiora, costa carnosa elevata; stipulæ parvæ, carnosæ, acutæ. *Receptacula* androgyna, pedunculis crassiusculis 5–8 lin. longis suffulta, recurva, orbicularia, lucida undique papillosa, vix 6 lin. diametro, stellato-lobata, lobis circiter 8 angustissimis cum dentibus brevissimis alternantibus. *Flores* masculini et feminei mixti. *Fructus* ignotus.

South-east Arabia: without special locality, *Bent.*

Readily distinguished from the only other species from the region—*D. radiata*, Lam. (*Kosaria*, Forsk. *Fl. Ægypt. Arab.* p. 164, t. 20) and *D. gigas*, Schweinf. (Balf. in *Trans. Roy. Soc. Edinb.* xxxi. t. 95.) The former has less crowded tubercles, leaves cordate at the base and smaller receptacles; and the latter is an altogether larger and different plant. Both agree in having fleshy stems and stellate receptacles.—W. Botting Hemsley.

Fig. 1, a stipule; 2, tubercle arising from the enlarged basal scars of stipules, leaf and peduncle combined; 3, a receptacle; 4, the same in a more advanced stage; 5, tip of one of the lobes; 6, a portion of the flowers; 7, a male flower; 8, a pistil.—*All enlarged.*

M.S del et lith

Eryngium longipetiolatum, Hemsl.

PLATE 2504.

ERYNGIUM LONGIPETIOLATUM, *Hemsl.*

UMBELLIFERÆ.

E. longipetiolatum, *Hemsl.* (*sp. nov.*); species inter *E. longirameum* et *E. scaposum* medium tenens, differt imprimis foliis radicalibus longe petiolatis oblongis basi cuneatis.

Perenne? undique glabrum, omnino inerme. *Radix* crasse fibrosa. *Caulis* erectus, pauciramosus, foliiferus, 1–2½ ped. altus, 2–3 lin. diametro, oligocephalus. *Folia* radicalia et caulina inferiora longe petiolata (petiolo interdum usque ad 10 poll. longo), crassiuscula, anguste ovato-oblonga, absque petiolo 1–3½ poll. longa et 9–18 lin. lata, apice obtusa vel rotundata, basi cuneata, vel caulina subcordata, truncato-crenata atque albo-marginata, caulina superiora sessilia, basi auriculata, amplexicaulia, sursum gradatim minora. *Capitula* ternata, vel in ramis lateralibus solitaria, longe pedunculata, hemisphærica, quam bracteæ breviora. *Involucri bracteæ* 9–12, contiguæ vel inter se obtegentes, rigidæ, oblongæ, angustæ, 3–6 lin. longæ, apice sæpius rotundatæ, brevissime spinosæ, supra medium sæpissime bispinoso-dentatæ, raro dentibus 2–3 additis. *Paleæ* e basi lata subulatæ, incurvæ, demum rigidæ, flores superantes. *Calycis dentes* angusti, ovati, subspinoso-apiculati, circiter ½ lin. longi. *Petala* non visa. *Carpella* circiter 1 lin. longa, præcipue supra medium squamis acutis obtecta, stylis elongatis recurvis; vittæ sæpius 5, quarum 2 ad commissuram, parvæ.

MEXICO: near San Cristobal, Chiapas, at 7,000 to 8,800 feet, *Nelson*, 3151.

This and the following seven plates illustrate, to a small extent only, the variety in habit, foliage, and fruit exhibited by the Mexican species of *Eryngium*.—W. BOTTING HEMSLEY.

Fig. 1, a bract; 2, a pale; 3, a fruit; 4, a mericarp; 5, a cross section of a mericarp.—*All enlarged.*

4
5

Plate 2505.

ERYNGIUM PAUCISQUAMOSUM, *Hemsl.*

UMBELLIFERÆ.

E. paucisquamosum, *Hemsl.* (*sp. nov.*) ; species elegans, gracillima, ex affinitate *E. Ghiesbreghtii*, a quo differt foliis crassioribus oblongis crenatis, involucri bracteis numerosioribus contiguisque.

Perenne, ut videtur stoloniferum, undique glabrum. *Caulis* erectus, gracillimus, 9–24 poll. altus, fere nudus, apice 3–5-cephalus. *Folia* crassa, subcarnosa, radicalia et caulina inferiora longe petiolata, oblonga vel elliptica, absque petiolo $1\frac{1}{2}$–$1\frac{3}{4}$ poll. longa, basi leviter cordata, apice rotundata, crenulata atque marginata, subtus conspicue venosa, petiolo gracili 2–3 poll. longo ; folia pauca caulina superiora sessilia, angustiora, semi-amplexicaulia. *Capitula* sæpius 3–5, subglobosa, 3–4 lin. diametro, graciliter pedunculata, pedunculis lateralibus prope medium bibracteatis, pedunculis terminalibus nudis. *Involucri bracteæ* 7–10, sæpius 9, crassæ, rigidæ, oblongo-lanceolatæ, 2–4 lin. longæ, subacutæ, integræ vel rarissime bidenticulatæ, demum reflexæ, cyaneæ. *Paleæ* e basi lata scariosa abrupte subulato-acuminatæ, curvatæ, flores superantes. *Flores* pauci, cyanei. *Calycis dentes* lanceolati, scariosi, apiculati, vix rigidi, carpellis æquilongi. *Carpella* semiovoidea, (unum sæpe abortivum), absque calycis dentibus circiter $\frac{1}{2}$ lin. longa, squamis paucissimis instructæ ; vittæ 5, quarum 2 ad commissuram, minutissimæ ; styli calycis dentes superantes, divaricati.

MEXICO : mountains near Tlapancingo, at 6,000 to 8,000 ft., *Nelson*, 2083 ; summit of Sierra Madre, at 9,000 to 10,200 ft., *Nelson*, 2213.

The specimens cited above are all in the United States National Herbarium at Washington ; and complete drawings of the specimens under the former number are in the Kew Herbarium. These and other specimens were lent, through the kind offices of Mr. J. N. Rose, by the late Dr. G. Brown Goode, Assistant Secretary of the Smithsonian Institution, for my intended monograph of the Mexican species of *Eryngium* ; the herbarium material being generally in great need of revision.—W. BOTTING HEMSLEY.

Fig. 1, a pale ; 2, a fruit surmounted by the calyx-lobes ; 3, a mericarp showing the narrow commissure : 4, a petal ; 5, cross section of fruit, one carpel aborted. — *All enlarged.*

M.S. del et lith.

Eryngium bracteatum Lamarck

Plate 2506.

ERYNGIUM BEECHEYANUM, *Hook. et Arn.*

Umbelliferæ.

E. beecheyanum, *Hook. et Arn. Bot. Beech. Voy. p.* 295 ; ex affinitate *E. Carlinæ* sed ramosius, capitulis numerosis minoribus, paleis flores vix excedentibus.

Caulis erectus, 1½–2 ped. altus, a medio corymboso-ramosus, apice dichotomo-ramosus, undique glaber, ramulis pedunculisque gracillimis. *Folia* radicalia et caulina inferiora desunt ; caulina superiora sessilia, parva, 1–2 poll. longa, anguste bipinnatisecta vel suprema palmatisecta, spinoso-dentata. *Capitula* numerosa, distincte pedunculata, ovoidea, 3–5 lin. longa, apice ob paleas paucas auctas breviter comosa. *Involucri bracteæ* circiter 10–12, rigidæ, lineari-lanceolatæ, 4–8 lin. longæ, spinoso-acuminatæ, integræ vel medio bidentatæ. *Paleæ* flores paulo superantes, vix rigidæ, lineari-subulatæ. *Calycis dentes* ovati, apiculati, circiter ½ lin. longi. *Petala* non visa. *Carpella* oblonga, absque calycis dentibus circiter ⅓ lin. longa et ⅓ lin. lata, eleganter denseque papillosa, papillis minutis globosis crystallinis ; vittæ sæpe 7, minutæ ; styli calycis dentes superantes, divaricati.

Mexico: Jalisco, *Beechey* ; Tepic, *Barclay* ; Santa Maria, near Cuernavaca, *Hahn*, 400 ; Oaxaca, *Ghiesbreght* ; Michoacan, *Altamirano*, 24.

At first sight this might be taken for a slender form of *E. Carlinæ*, Delar. ; but apart from its slenderness and the more numerous heads, the involucral bracts are entire or only bidentate, the palea are relatively and absolutely shorter, and the scales or papillæ on the fruit are very different. *E. beecheyanum* was founded on very imperfect material, and it was only by very critical comparison that its identity with good specimens was established. The matter was further complicated by several other distinct species having been confused with it.—W. Botting Hemsley.

Fig. 1, a bract ; 2, a pale ; 3, a flower in an advanced stage ; 4, a mericarp ; 5, a petal ; 6, a cross section of a mericarp.—*All enlarged.*

M.S. del et lith.

Eryngium spiculosum, Hensl.

Plate 2507.

ERYNGIUM SPICULOSUM, *Hemsl.*

Umbelliferæ.

E. spiculosum, *Hemsl. (sp. nov.)*; *E. comoso* simile sed ramosius, multo minus rigidum, foliis caulinis subpalmatisectis, carpellis spiculis minutis ramosis ornatis.

Caulis erectus, ut videtur 1½–2 ped. altus, gracilis, superne dichotomo-ramosissimus, undique glaber, ramulis pedunculisque pro genere gracillimis. *Folia* radicalia et caulina inferiora non visa; caulina superiora subsessilia, glabra, tenuia, subpalmatisecta, maxima 4½ poll. longa, sæpius trilobata, interdum lobulis paucis parvis basalibus additis, spinoso-dentata, spinis haud rigidis. *Capitula* numerosa, distincte graciliterque pedunculata, ovoidea vel subglobosa, absque coma 3-5 lin. longa, ob paleas paucas auctas apice comosa vel interdum nuda; comæ paleis rigidis interdum usque ad 1 poll. longis sed sæpius brevioribus. *Involucri bracteæ* 5–8, rigidiusculæ, lineari-lanceolatæ, 6–12 lin. longæ, spinoso-acuminatæ, sæpissime integræ sed interdum infra medium 1–2-dentatæ. *Paleæ* subulatæ, rigidæ, flores superantes. *Flores* distincte pedicellati. *Calycis dentes* scariosi, ovati, apiculati, circiter ¾ lin. longi. *Petala* apice fimbriata. *Carpella* vix ¾ lin. longa, oblonga, fere teretia, spiculis minutis ramosis densissime vestita; vittæ sæpe 9, sat conspicuæ; styli calycis dentes longe superantes, divaricati.

Mexico: without locality, *Ocampo*; Michoacan, *Hahn*; both in the Paris Herbarium; Estado de Morelos, *F. Altamirano*, 18; in the United States National Herbarium.

This is one of the most remarkable species in a genus abounding in singular and elegant forms. It is exceptional, so far as my investigations go, in having distinctly pedicellate flowers, and the beautiful appendages of the fruit are quite unlike those of any other species known to me. The description and figure were prepared from specimens in the Paris Herbarium, kindly lent by Prof. Bureau for my intended monograph of the Mexican species.—W. Botting Hemsley.

Fig. 1, a pedicellate flower with pale or bracteole: 2, a petal; 3, cross section of a mericarp.—*All enlarged.*

M.E. del. et lith

Eryngium sparganophyllum, Hemsl.

Plate 2508.

ERYNGIUM SPARGANOPHYLLUM, *Hemsl.*

Umbelliferæ.

E. sparganophyllum, *Hemsl.* (*sp. nov.*); species insignis, inermis, foliis linearibus longissimis, involucri bracteis paleis simillimis.

Caulis erectus, ut videtur pluripedalis, supra medium bis terve ditrichotomo-ramosus, foliis ad ramificationes paucis parvis bracteiformibus dentatis exceptis aphyllus, leviter sulcatus, atque folia undique glaber. *Folia* radicalia indivisa, angustissima, fere linearia, acuta, 3–4 ped. longa, mollia, spongiosa, aculeis paucissimis minimis exceptis inermia, striata, siccitate arcte involuta. *Capitula* pauca, oblongo-ovoidea, 6–12 lin. longa, distincte pedunculata. *Involucri bracteæ* atque paleæ ovato-lanceolatæ, spinoso-acuminatæ, sed vix rigidæ, interdum bracteis paucis exterioribus angustioribus paleas paulo excedentibus; paleæ flores paulo excedentes. *Calycis dentes* ovati, apiculati, fructiferi late patentes, circiter $\frac{3}{4}$ lin. longi. *Petala* non visa. *Carpella* oblonga, absque calycis dentibus 2 lin. longa, longitudinaliter subtriangulata, ad angulos squamis magnis laxe cellularibus spongiosis ornata, inter angulos squamis minoribus vestita, stylis calycis dentes persistentes superantibus divaricatis; vittæ parvæ, ad commissuram 2, inter jugum dorsale et 2 lateralia solitariæ.—*E. longifolium*, A. Gr. Pl. Wright, ii. p. 65, non Cav.

New Mexico: Las Playas Springs, near the Sierra de los Animos, *Wright*, 1103.

This is so very distinct, and so very different from *E. longifolium*, Cav., that one wonders why it was referred to that species.—W. Botting Hemsley.

Fig. 1, portion of leaf showing one of the few minute marginal prickles; 2, a bract; 3, a pale; 4, a fruit; 5, commissural view of a mericarp; 6, section of a fruit; the apparently winged condition is owing to the section being carried through some of the scale-like appendages.—*All enlarged.*

Eryngium cryptanthum, Hemsl.

Plate 2509.

ERYNGIUM CRYPTANTHUM, *Hemsl.*

Umbelliferæ.

E. cryptanthum, *Hemsl.* (*sp. nov.*); species nana, monocarpica, capitulis parvis, involucri bracteis confertis flores superantibus.

Planta, ut videtur, biennis, vel saltem monocarpica, undique glabra. *Caulis* erectus, 6–15 poll. altus, gracilis, a basi pauciramosus, striatus, ramulis erectis di- vel trichotomis. *Folia* tenuia, vix coriacea, radicalia rosulata, sessilia, oblongo-spathulata, 1–2 poll. longa, spinuloso-dentata, albo-marginata, caulina minora, paucilobata. *Capitula* pauca, graciliter pedunculata, parva, ovoidea, maxima absque bracteis circiter 3 lin. longa. *Involucri bracteæ* 5–7, rigidiusculæ, spinulosæ, lanceolatæ, 3–5 lin. longæ, flores includentes, medio sæpissime bidentatæ. *Paleæ* e basi lata acutæ, flores paulo superantes. *Calycis dentes* minutæ, ovatæ, $\frac{1}{4}$–$\frac{1}{3}$ lin. longæ, minutissime apiculatæ, demum incurvæ. *Petala* apice inflexa, fimbriata. *Carpella* oblonga, $\frac{1}{2}$–$\frac{2}{3}$ lin. longa, undique regulariter spongioso-squamosa, stylis divaricatis; vittæ minutæ, ad commissuram 2, ad valleculas solitariæ vel geminatæ vel obsoletæ.—*E. beecheyanum*, Seem. Bot. Voy. Herald, p. 294, non Hook. et Arn.

North-west Mexico: Sierra Madre, *Seemann*, 2135.

This is not even closely allied to the species with which Seemann associated it; and is remarkable for the very small flower-heads concealed within the bracts of the involucre.—W. Botting Hemsley.

Fig. 1, a capitulum in vertical section; 2, a bract; 3, a pale; 4 and 5, flowers in an advanced stage; 6, a mericarp; 7, a petal; 8, cross section of a mericarp.—*All enlarged.*

M. S. del. et lith.

Eryngium (Calceoli, Hort.)

ERYNGIUM GALEOTTII, *Hemsl.*

Umbelliferæ.

E. Galeottii. *Hemsl.* (*sp. nov.*) ; species ex affinitate *E. paucisquamosi*, a quo differt imprimis foliis lanceolatis et involucri bracteis aculeato-dentatis.

Perenne? glabrum, subinerme, radice tuberosa, tuberibus cylindricis. *Caules* subsimplices, graciles, 1½–2 ped. alti, 1 3-cephali. *Folia* crassa, subcoriacea, vix rigida, radicalia (vel caulina inferiora) longissime petiolata, lanceolata, cum petiolo 5–7 poll. longa, acuminata, basi rotundata, crenato-dentata, superiora sessilia, angusta, sursum gradatim minora, aculeato-dentata, bracteiformia *Capitula* erecta, graciliter pedunculata, globosa vel oblonga, absque bracteis circiter 6 lin. diametro. *Involucri bracteæ* 5-7, rigidæ, lanceolatæ, 3 6 lin. longæ, acutæ, pungentes, sæpius aculeato-dentatæ, dentibus 2 6 inæqualibus. *Paleæ* angustæ, fere subulatæ, pungentes, flores paulo superantes, incurvæ. *Calycis lobi* oblongo-lanceolati, longe cuspidato-acuminati. *Styli* elongati, divaricati. *Carpella* (matura non visa) subtriangularia, ubique squamosa, squamis secus angulos longioribus acutis.—*E. microcephalum*, Willd. ? Hemsl. in Biol. Centr.-Am., Bot. i. p. 563 ; *E. Ghiesbreghtii*, Coult. et Rose in Contrib. U. S. Nat. Herb. iii. p. 299, non Decne.

Mexico : Cordillera of Oaxaca at 7,000 to 8,000 feet, *Galeotti*, 2767 ; *Pringle*, 4746.

I find that Schlechtendal and Chamisso (*Linnæa*, v. p. 207) reduce *E. microcephalum*, Willd. to *E. Bomplandi*, Delar., the type of which I have since seen in the Paris Herbarium. It differs in having small ovate-oblong leaves, very short, entire bracts, papillose carpels, and remarkably long, reflexed styles. *E. Ghiesbreghtii*, Decne., differs strikingly in having cordate leaves.—W. Botting Hemsley.

Fig. 1, a bract; 2, a pale; 3, a flower; 4, a petal: 5, a stamen; 6, cross section of a mericarp.—*All enlarged.*

Plate 2511.

ERYNGIUM COLUMNARE, *Hemsl.*

Umbelliferæ.

E. columnare, *Hemsl.* (*sp. nov.*); inter species armatas foliis anguste lanceolatis ob receptaculum valde elongatum insignis.

Perenne? omnino glabrum, caulibus erectis circiter 18 poll. altis (forsan interdum altioribus) sæpe semel trichotomis. *Folia* (radicalia primaria non visa) coriacea, rigida, sessilia, lanceolata, inferiora 4-6 poll. longa, superiora sursum gradatim minora, spinoso-dentata, spinis geminatis, altera minuta altera usque ad 6 lin. longa, spinoso-acuminata, suprema sub opposita. *Capitula* erecta, longe pedunculata, subcylindrica, $\frac{3}{4}$-$1\frac{1}{4}$ poll. longa. *Involucri bracteæ* 9-10, rigidæ, lineari-lanceolatæ, 4-12 lin. longæ, sæpius medium versus bidentatæ, interdum integræ, pungentes, demum reflexæ. *Paleæ* lanceolatæ, pungentes, flores superantes, incurvæ. *Calycis dentes* ovato-oblongi, brevissime apiculati. *Styli* longissimi, suberecti. *Carpella* trialata, alis apice productis; vittæ sæpe 5, quarum 2 commissurales.—*E. pectinatum*, Benth. Pl. Hartw. p. 38, vix Presl.

Mexico: without locality, *Graham*, 217; *Bates*.

This is one of four or five different species which have been referred in various herbaria and books to *E. pectinatum*, Presl., of which I have seen no authenticated specimen; but from the imperfect description, I am rather confident that the present plant cannot be that species. In the description of *E. pectinatum*, Presl. (*DC. Prodr.* iv. p. 96) we find: '*involucri foliolis . basi grosse spinoso-dentatis*' and '*valde accedit ad E. bromeliæfolium*'; but *E. columnare* much more closely resembles *E. cymosum*, Delar. (E. axilliflorum, *Turcz.*) Indeed the foliage is very similar, but the habit and fruit are different. The plant referred by Hooker and Arnott (*Bot Beech. Voy.* p. 293) to *E. pectinatum* is also very near; the heads are globose, however, and the fruit clothed all over with cellular scales.—W. Botting Hemsley.

Fig. 1, a pale; 2, a young fruit; 3, cross section of the same.—*All enlarged.*

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Plate 2512.

CALVARIA MAJOR, *Gærtn. f.*

Sapotaceæ.

C. major, *Gærtn. f., Fruct., Suppl. p.* 116. *t.* 200 ; inter Sapotaceas affines ob semen horizontale insignis.

Arbor ramulis floriferis crassis novellis cito glabrescentibus. *Folia* ad apices ramulorum conferta, distincte petiolata, petiolis ferrugineo-puberulis 6–12 lin. longis, coriacea, obovato-oblonga, 4–7 poll. longa, apice obtusa vel rotundata emarginata vel interdum obtuse subacuminata, basi cuneata, leviter undulata, venis primariis lateralibus numerosis haud conspicuis, venis ultimis crebre reticulatis, costa supra impressa subtus elevata. *Flores* secus ramulos elongatos infra folia fasciculati, breviter pedicellati, 3–4 lin. longi. *Sepala* 5, crassa, coriacea, ferrugineo-pubescentia, rotundata, valde imbricata. *Corollæ* tubus brevissimus ; lobi 5 rotundati. *Stamina* 5, inclusa, glabra, staminodia 5, angusta, tenuia, induplicata, intus leviter pilosa, stamina paulo superantia. *Ovarium* hirsutum, 5-loculare, ovula in quoque loculo solitaria. *Fructus* pyriformis vel ovoideus, circiter $2\frac{1}{2}$ poll. longus, 1–spermus, pericarpio tenui carnoso-fibroso. *Semen* horizontale, hilo maximo inferiore ; testa crassissima, densissima, vasis fibrosis perforata et intus fibrosa ; albumen parcum ; embryo magnitudine fere albuminis, horizontalis, axilis, cotyledonibus orbicularibus planis, radicula brevi.

Mauritius : Montagnes des Immortelles, *A. Daruty*, communicated by *Bouton* ; without special locality, *W. Scott.*

This is the ‘ Bois de Natte,’ or at least one of the trees bearing that name in Mauritius. It is also called the ‘Tambolacoque,’ and it is doubtless the *Calvaria major* of Gærtner the younger ; but its synonymy cannot be given with certainty. Bouton sent two different plants to Kew on different occasions, which he confused. He correctly identified one of them with *Calvaria*, and sent both fruits and flowering specimens ; but he appears to have been wrong in supposing that *Calvaria major*, Gærtn. f., was the same as *Sideroxylon boutonianum* A. DC. (*Prodr.* viii. p. 179). Baker (*Flora of Mauritius*, p. 193) places (*Cal-*

caria major as a synonym of *Sideroxylon grandiflorum*, A. DC., but his description of leaves and flowers was drawn up from specimens bearing the same name, though evidently of a different species from the one here figured. In the absence of the types of De Candolle's species, the question of synonymy must be left for the present. *Calvaria* is probably as distinct a genus as many others in the order, and no harm can result from temporarily restoring it. The solitary horizontal seed is remarkable.

Two or three years ago Prof. Newton sent to Kew, through Mr. I. H. Burkill, some seeds which had been unearthed with bones of the Moa. It was supposed at the time that they belonged to *Calvaria major*, Gærtn. f., but further investigation points to their belonging to the species named *C. heterangularis*, Gærtn. f., which has not been identified with any existing tree. —W. Botting Hemsley.

Fig. 1, calyx and pistil; 2, portion of corolla with stamens and staminodes attached; 3, a stamen; 4, a staminode; 5, pistil; 6, cross section of the ovary; 7, a fruit, copied from Gærtner; 8, a seed; 9, vertical section of a fruit, the pericarp much dried, showing the horizontal embryo; 10, cross section of a seed, showing the fibrous inner layer of the testa; 11, a similar section, below the cavity containing the albumen and embryo, showing traces of the vascular bundles which run from the peduncle to the inner testa; 12, a seed, from which the outer testa has been removed, seen from above; 13, the same, from below; 14, embryo.—*Figures* 1–6 *enlarged; the rest natural size.*

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Plate 2513.

ALOE NUTTII, *Baker.*

Liliaceæ. Tribe Aloineæ.

A. Nuttii, *Baker* (*sp. nov.*); ad *A. Cooperi* accedit; differt perianthii tubo elongato oblongo, foliis multo angustioribus.

Herba acaulis. *Folia* linearia, erecta, sesquipedalia, vix carnosa, immaculata, facie canaliculata, deorsum 3–4 lin. lata, dentibus marginalibus minutissimis. *Pedunculus* validus, simplex, erectus, sesquipedalis. *Racemus* subdensus, cylindricus, 6–9 poll. longus; pedicelli, ascendentes, apice cernui, articulati, inferiores 12–15 lin. longi; bracteæ ovatæ, scariosæ, persistentes, 6–9 lin. longæ. *Perianthium* cylindricum, pallide rubrum, 15–16 lin. longum, tubo oblongo, segmentis linearibus apice viridibus tubo paulo longioribus. *Stamina* hypogyna, perianthio paulo breviora, filamentis filiformibus, antheris parvis oblongis. *Ovarium* ampullæforme; stylus subulatus, elongatus, stigmate minuto, capitato. *Capsula* oblonga, perianthio multo brevior.

East Central Africa: Fwambo, south-east of Lake Tanganyika, *A. Carson*; *W. H. Nutt.*

This new *Aloe* belongs to a group having acaulescent rosettes of long scarcely fleshy narrow leaves, which is represented by six species in Cape Colony and three in Tropical Africa. The number of Aloes known in Tropical Africa now amounts to nearly forty, and every new district that is explored yields new species.—J. G. Baker.

Fig. 1, portion of leaf; 2, flower; 3, anthers; 4, pistil.—*All enlarged.*

Echinops bromeliæfolius,

Plate 2514.

ECHINOPS BROMELIÆFOLIUS, *Baker.*

Compositæ. Tribe Cynaroideæ.

E. bromeliæfolius, Baker (*sp. nov.*) ; a speciebus omnibus hactenus cognitis differt foliis linearibus longitudinaliter crebre nervosis.

Herba perennis. *Caulis* strictus, simplex, erectus, validus, glaber. *Folia* caulina sessilia, contigua, ascendentia, linearia, 6-8 poll. longa, spinulis marginalibus stramineis crebris ciliata, facie glabra, dorso albo-gossypina. *Capitulum* compositum solitarium, oblongum, breviter pedunculatum. *Receptaculum* cylindricum, areolis quadratis. *Involucrum* 1 poll. longum, bracteis exterioribus multis setosis, centralibus paucis angustis apice dilatatis, interioribus coriaceis lanceolatis serratis. *Corollæ* tubo basi cylindrico, superne infundibulari, lobis linearibus erectis tubo brevioribus. *Antheræ* lineares, basi profunde sagittatæ. *Achenia* brevia, pilosa, pappo coroniformi, paleis apice liberis truncatis ciliatis.

East Central Africa : Nandi, *Scott Elliot*, 7001.

This very curious new species of *Echinops* was gathered by Mr. Scott Elliot on his expedition to explore Mount Ruwenzori, on his route between Mombasa and Uganda, at an elevation of probably 6,000-7,000 feet above sea-level. Of the species already known in Tropical Africa it comes nearest the Abyssinian *E. longifolius*, A. Rich.—J. G. Baker.

Fig. 1, portion of leaf; 2, a one-flowered capitulum and involucre; 3, portion of receptacle; 4, 5, 6, 7 and 8, bracts of involucre: 9, corolla; 10, achene with pappus; 11, pappus, unrolled; 12, three stamens; 13, style-branches.—*All enlarged.*

M.S. Reliquiæ

M.S. del. et lith.

Tacca viridis, [illegible]

Plates 2515 and 2516.

TACCA VIRIDIS, *Hemsl.*

Taccaceæ.

T. viridis, *Hemsl.* (*sp. nov.*); inter species foliis divisis foliis palmatisectis distincta.

Herba perennis, undique glaberrima. *Folia* ampla, herbacea, longe petiolata, rugulosa, supra nitida, alte palmatiseeta vel subpedatiseeta, usque ad 3 ped. diametro, segmenta primaria sæpius 5 grosse lyrato-pinnatifida, lobis paucis latis angulatis acutis : petiolus crassus, subteres, facie leviter canaliculatus, $1\frac{1}{2}$-2 ped. longus. *Scapus* validus, folia superans. *Involucri bracteæ* foliaceæ, 3-4 poll. longæ, 2 recurvæ et apice acute lobatæ, ceteræ erectæ, lanceolatæ, acutæ flores longe superantes. *Bracteolæ* ("pedicelli steriles" auctorum nonnullorum) filiformes, deorsum crassiores et canaliculatæ, elongatæ, pedales, pendentes. *Flores* numerosi, virides. *Pedicelli* numerosi, recurvi, confertissimi, umbellam formantes. *Perianthii segmenta* carnosa, ovato-oblonga, 4–5 lin. longa, apice rotundata, 3 exteriora angustiora, omnia incurva et demum arcte conniventia, persistentia. *Ovarium* vertice 3-foveolatum et glandulis stipitatis nectariferis instructum, stigmatis lobis petaloideis bilobatis arcte recurvis subtus uniporis. *Bacca* viridis, carnosa, ovoidea, circiter 3 poll. longa, prominenter 6-costata ; semina numerosissima, longitudinaliter multicostata, rugulosa, in pulpa viscosa irregulariter immersa.

India. Presented to Kew by Messrs. James Veitch & Son in 1895. It is probably from the Malayan Peninsula.

Ripe fruit of this was not obtained until after the plate was printed off. It is very similar to that of *T. pinnatifida*, Forst.—W. Botting Hemsley.

Plate 2516: fig. 1, section of bracteole; 2, a flower; 3, vertical section of a flower; 4, extrorse stamen attached to perianth; 5, hooded connective containing the anther-cells; 6, a lobe of the stigma showing the pore.—*All enlarged.*

Coelarthrion Brandisii, Hook. f.

Plate 2517.

COELARTHRON BRANDISII, *Hook. f.*

Gramineæ. Tribe Andropogoneæ.

C. Brandisii, *Hook. f., Fl. Brit.-Ind.* vii. p. 164 ; species unica.

Caules prostrati, ad nodos radicantes, graciles, albidi, glabri : rami florentes ascendentes vel erecti, 3 -6-foliati, 6–9 poll. longi, foliis infimis approximatis a summo longe distantibus, internodiis superioribus 2 e vaginis exsertis. *Foliorum vaginæ* arctæ, glabræ ; ligulæ breves, ovatæ, obtusæ, glabræ : laminæ lanceolatæ, utrinque acuminatæ vel acutæ, membranaceæ, flaccidæ, glabræ, tenuiter nervosæ, 1–2 poll. longæ, 2–3½ lin. latæ. *Spicæ* solitariæ, strictæ vel leviter incurvæ, secundæ, albidæ, glabræ, 1–1½ poll. longæ ; rhachis fragilis ; internodia clavata, tubulosa, plano-convexa, apice truncata, spiculis sessilibus breviora. *Spiculæ* imbricatæ, geminatæ ; par infimum imperfectum ; cætera paria heterogama altera spicula sessili hermaphrodita altera pedicellata plus minusve vel interdum admodum redacta. *Spicula sessilis*, a dorso compressa, 1½ lin. longa ; *gluma* i ovato-oblonga basi in callum minutum barbatum producta, apice obscure truncata, in dorso glabro canaliculata marginibus inflexis angustis carinis supra medium ciliatis ; *gluma* ii cymbiformis, apice submarginata, 1 nervis, ciliata, sub apice aristata, arista gracili torta glumam circiter æquante ; *gluma* iii vacua, a dorso complanata, oblonga, quam ii paulo brevior, tenuis, marginibus angustissimis inflexis, flexuris ciliatis ; *gluma* iv minuta, ovato-oblonga, bifida, glabra, 3 nervis, e sinu aristata, arista gracili geniculata columna torta fusca, seta albida ; *palea* minuta, ovata, obtusa, glabra, hyalina. *Spicula pedicellata* inermis, pedicello complanato lineari vel clavato-lineari ciliato.

Burma: high ground, generally where there is teak, *Brandis.*—(). Stapf.

Fig. 1, two pairs of spikelets ; 2, glume i, seen from inside ; 3, sessile spikelet, with glume i removed ; 4, glume ii ; 5, glume iii ; 6, glume iv ; 7, palea ; 8, flower, showing only one stamen ; 9, lodicule.—*All enlarged.*

M S del et lith

Efulensia clematoides, C.H Wright.

Plate 2518.

EFULENSIA CLEMATOIDES, *C. H. Wright.*

Passifloraceæ. Tribe Passifloreæ.

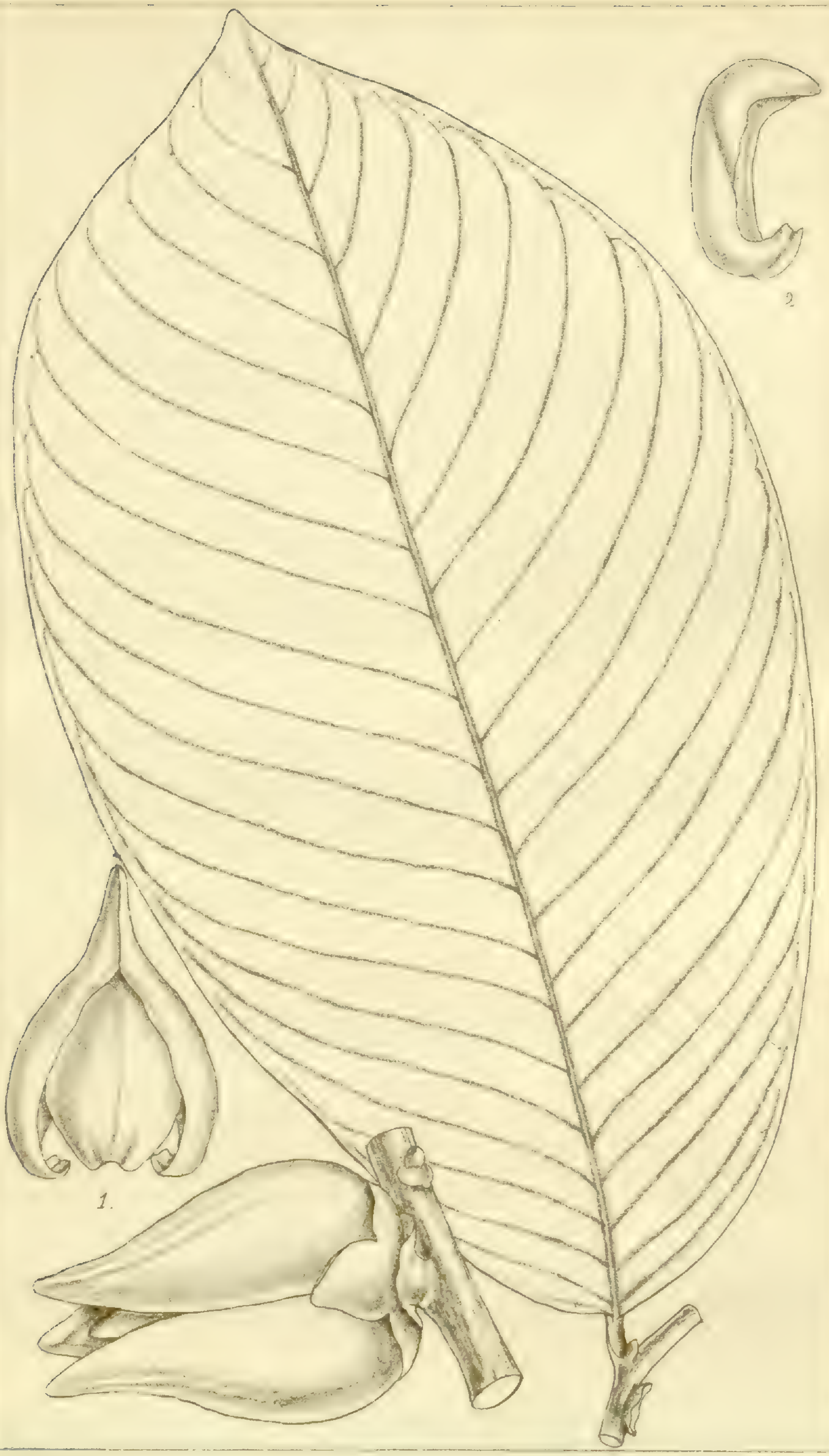
Efulensia, *C. H. Wright (gen. nov.)*; *flores* hermaphroditi. *Calyx* 5 partitus, lobis imbricatis. *Petala* 5, imbricata. *Corona* simplex, segmentis pluribus filiformibus basi breviter conjunctis. *Stamina* 5, filamentis basi in annulum brevem connatis. *Ovarium* sessile, uniloculare, placentis 3 parietalibus; stylus tripartitus; stigmata capitata.—Frutex *scandens*. Folia *alterna, trifolioluta, petiolis eglandulosis*. Cirrhi *simplices, axillares*. Inflorescentia *supra-axillaris, paniculata, multiflora*.

E. clematoides, *C. H. Wright (sp. unica)*; *caulis* fruticosus, teres, lævis. *Foliola* ovata, brevissime mucronata, coriacea, 3½ poll. longa, 2 poll. lata; petiolus 2½ poll. longus; petioluli 1 poll. longi. *Cirrhi* indivisi, robusti, circa 9 poll. longi. *Paniculæ* 5 poll. longæ, bracteolis minutis scariosis. *Flores* 8 lin. diam. *Calycis* lobi late oblongi, obtusi, valde imbricati. *Petala* oblonga, reflexa, imbricata, sepalis paulo longiora, dilute virescentia. *Coronæ* laciniæ prope basin intus lateraliterque papillosæ, extus glabræ. *Filamenta* plana, corona multo longiora; antheræ dorsifixæ. *Ovarium* subglobosum, pluriovulatum. *Fructus* ignotus.

West Tropical Africa: Cameroon region, Efulen, *G. L. Bates*, 422.

This genus is most nearly allied to the West African *Crossostemma*, Planch., with which it agrees in having a uniseriate corona, 5 stamens and a sessile ovary, but differs in its compound leaves and divided style.—C. H. Wright.

Fig. 1, flower; 2, portion of corona seen from within; 3, two stamens and pistil; 4, dorsal view of young stamen; 5, section of ovary.—*All enlarged.*



M.S. del. et lith.

Anona Prestoei, Hemsl.

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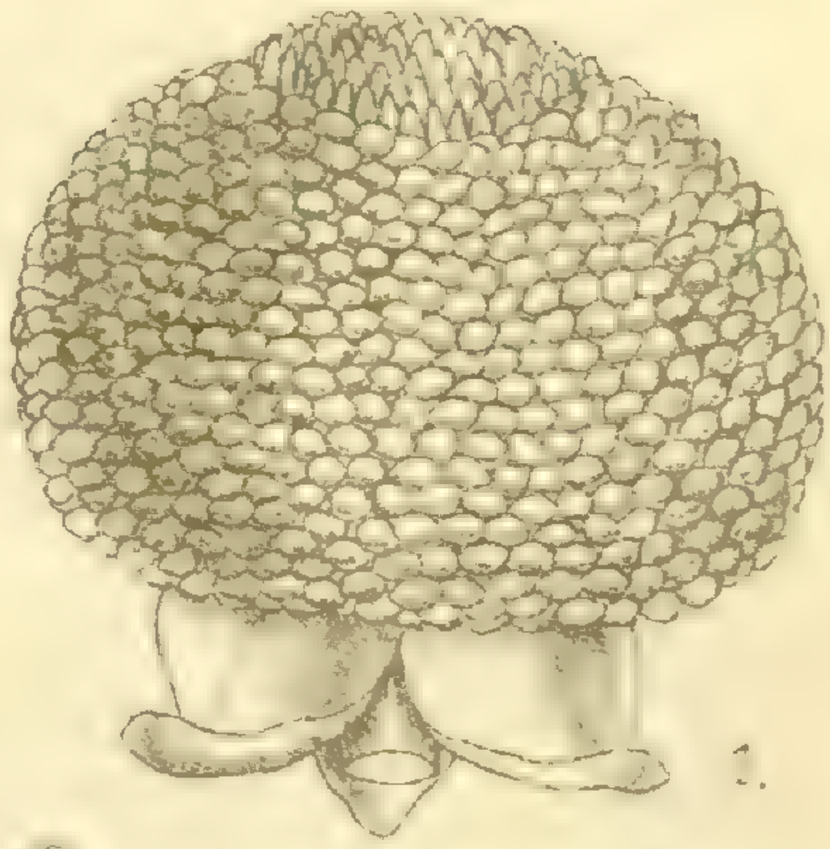


1.

M S del et lith.

Anona Prestoei, Hemsl.

Plates 2519 and 2520.

ANONA PRESTOEI, *Hemsl.*

ANONACEÆ.

A. Prestoei, *Hemsl.* (*sp. nov.*) ; species foliis amplis fructu fibroso-lignoso magno sphæroideo insignis.

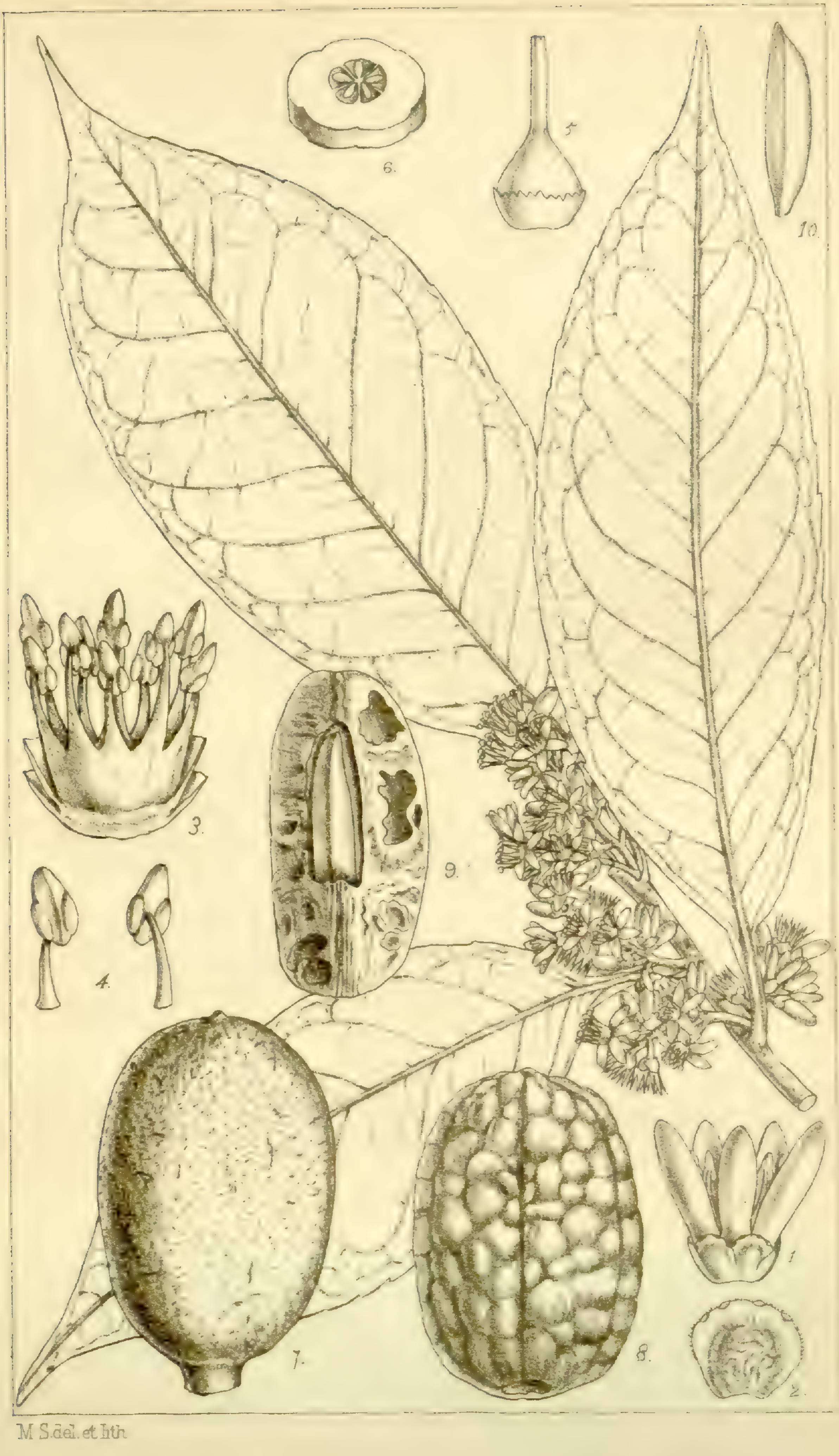
Arbor ramulis floriferis cito glabrescentibus pallide brunneis sæpe crebre lenticellatis. *Folia* breviter petiolata, subcoriacea, ovato-oblonga vel obovato-oblonga, usque ad 10 12 poll. longa et 6 poll. lata, obtuse acuminata, basi rotundata vel interdum subcuneata, leviter undulata, supra glabra vel cito glabrescentia, demum nitida, costa venisque impressis, subtus præcipue secus venas ferrugineo-pubescentia, costa elevata, venis primariis lateralibus numerosis prominentibus ; petiolus incrassatus, 3 6 lin. longus. *Flores* solitarii, subsessiles, extra-axillares, dense breviterque ferrugineo-tomentosi, $1\frac{1}{2}$–2 poll. longi et 1–$1\frac{1}{2}$ poll. lati, bracteis parvis suffulti. *Sepala* 3, crassa, deltoidea, 3–4 lin. longa. *Petala* crassissima, 3 exteriora valvata, ovato-lanceolata, obtusa, 3 interiora paulo minora, imbricata. *Stamina* numerosissima, filamentis brevissimis, connectivo apice expanso subcapitato minute papilloso. *Carpella* numerosissima, puberula. *Fructus* fibroso-lignosus, sphæroideus, circiter 4 poll. diametro ; carpella 1-sperma, connata, apice libera, velutina, acuminata, canaliculata ; semen compresso-obovoideum, marginatum.

Tropical America : cultivated specimens from Trinidad, *Prestoe* ; *Hart.*

Specimens of this remarkable tree were first received in 1883, from Mr. H. Prestoe, then superintendent of the Trinidad Botanic Garden, with a note to the effect that it had been brought under his notice by the Hon. Leon Giuseppi, and was probably a native of Venezuela. The present superintendent, Mr. J. H. Hart, has completed the material. It is very near the Mexican *A. involucrata*, Baill. in foliage, but it wants the enveloping bracts, at least in the stages in which it is represented at Kew, and it is thought desirable not to risk confusing two species under one name. Baillon does not describe the singular fruit.—W. Botting Hemsley.

Plate 2519 : fig. 1, the three inner petals : 2, the innermost petal.—*Both natural size.*

Plate 2520 : fig. 1, a flower from which the petals have been removed ; 2, stamens ; 3, carpels ; 4, a seed ; 5, section of the same from which the testa has been removed ; 6, portion of testa showing some of the projections which cause the ruminated appearance of the albumen.—*All more or less enlarged except* 4, *which is natural size.*



M.S.del. et lith.

Sacoglottis amazonica, Benth.

SACOGLOTTIS AMAZONICA, *Mart.*

Humiriaceæ.

S. amazonica, *Mart. Nov. Gen. et Sp. Pl. Bras.* ii. p. 146 ; *Fl. Bras.* xii. 2. p. 449, t. 95 ; inter affines ad *S. gabonensem* proxime accedit, differt imprimis sepalis vertice glandulosis, fructu oblongo-ovoideo.

Arbor novellis omnino glabris, ramulis floriferis gracilibus, internodiis quam folia multo brevioribus. *Folia* distincte petiolata, lamina decurrente et biglandulosa, tenuiter coriacea, lanceolata, 4–8 poll. longa et $1\frac{1}{2}$–$2\frac{1}{4}$ poll. lata, caudato-acuminata sed vix acuta, basi cuneata vel subrotundata, obscure crenulata, subtus pallidiora, venis primariis lateralibus paucis inter se osculatis, venis ultimis laxe reticulatis sat conspicuis. *Flores* circiter $2\frac{1}{2}$ lin. longi, in cymas parvas extra axillares dispositi. *Sepala* basi coalita, rotundata, in margine 2–4-glandulosa. *Petala* anguste oblonga, obtusa, sepala triplo superantia. *Stamina* monadelpha, alterna breviora. *Ovarium* glabrum, 5-loculare. *Fructus* drupaceus, ellipsoideus vel interdum fere globosus, usque ad 2 poll. longus, exocarpio vix carnoso, endocarpio crasso osseo cavernis magnis resiniferis referto extus obscure bullato tardissime dehiscente. *Semina* 5, vel abortu pauciora, in quoque loculo solitaria, elongata, angulata, 6–10 lin. longa.

Trinidad : Irios forest, Cedros, *Crueger* ; *J. H. Hart*. Also in the delta of the Amazon, *Martius*.

The singular drift-fruit of this tree was known to European writers nearly three centuries ago. Clusius seems to have been the first to describe and figure it, in his *Exoticorum Libri Decem*, lib. ii. cap. 19 (1605). It is remarkable for the numerous large resin-chambers in the endocarp. Dr. D. Morris has given the history of it in *Nature*, liii. pp. 64–66 (1895).—W. Botting Hemsley.

Fig. 1, a flower ; 2, a sepal ; 3, andrœcium ; 4, stamens ; 5, pistil ; 6, cross section of ovary ; 7, a fruit ; 8, a fruit denuded of its epicarp (copied from '*Nature*') ; 9, one of the divisions into which the fruit finally breaks up ; 10, a seed.—*Figures* 1–6 *enlarged*, 7–10 *natural size*.

M.S. del et lith.

Tradescantia orchidophylla, Rose et Hemsl.

Plate 2522.

TRADESCANTIA ORCHIDOPHYLLA, *Rose et Hemsl.*

COMMELINACEÆ.

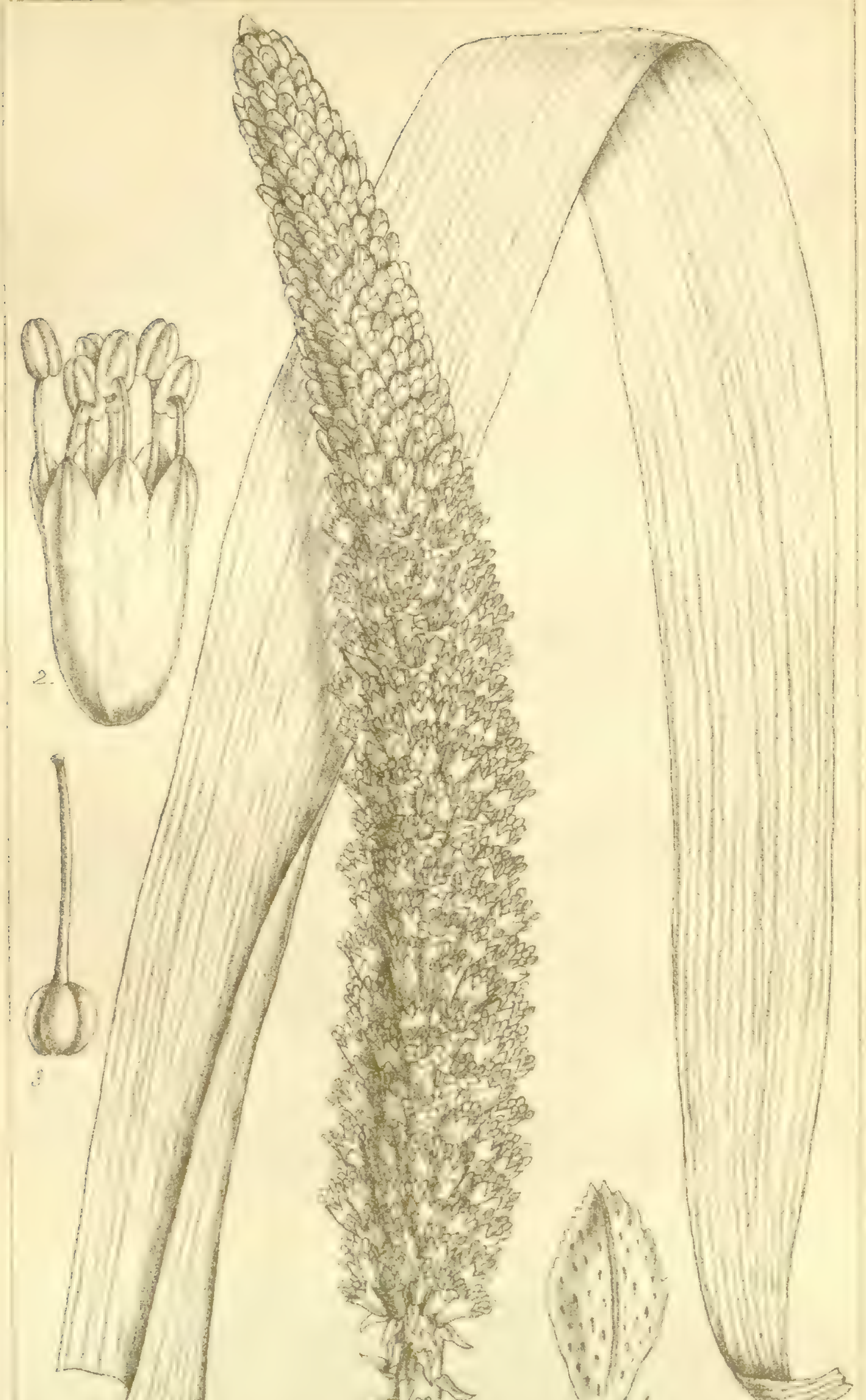
T. orchidophylla, *Rose et Hemsl.* (*sp. nov.*); *T. fuscatæ* similis sed foliis orbicularibus sessilibus differt.

Herba acaulis, paucifolia. *Folia* iis *Orchidis spectabilis* similia (fide Jones), supra terram applanata, sessilia, membranacea, purpureo-maculata, fere orbicularia, 2–4 poll. diametro, puberula, longitudinaliter 15–17-nervia, nervis pallidis alternis tenuioribus. *Flores* circiter 8 lin. diametro, 16-20, fasciculati, graciliter pedicellati, pedicellis puberulis 1–2 poll. longis. *Sepala* 3, ovato-lanceolata, vix acuta, hirsutula, quam petala breviora. *Petala* ovata, alba, tenuissima. *Stamina* 6, omnia perfecta, filamentis filiformibus nudis, connectivo late ampliato antherarum loculis discretis. *Ovarii* loculis 2-ovulatis. *Capsula* ignota.

MEXICO: in dark, wet woods below Colima, State of Colima, *M. E. Jones*, 467, in the United States National Herbarium.

I have only seen a single specimen of this remarkable species of *Tradescantia*. In habit it resembles *T. fuscata*, Lodd. (Pyrrheima Loddigesii, *Hassk.*), a Brazilian species cultivated early in the century; but it is at once distinguished by its sessile, orbicular leaves.—W. BOTTING HEMSLEY.

Fig. 1, a flower, natural size; 2, the same, enlarged; 3, views of a stamen, enlarged; 4, pistil, enlarged.



M.S. del. et lith.

Notosceptrum natalense, Baker

Plate 2523.

NOTOSCEPTRUM NATALENSE, *Baker.*

Liliaceæ. Tribe Hemerocallideæ.

N. natalense (*Baker in Fl. Cap.* vi. 285) ; habitu et foliis omnino specierum typicarum angolensium, recedit perianthii tubo segmentis triplo longiore.

Herba perennis, acaulis, glabra. *Folia* rosulata, lanceolata, acuta, coriacea, distincte multinervia, pedalia vel sesquipedalia, medio 9–12 lin. lata. *Pedunculus* validus, foliis æquilongus. *Spica* densa, cylindrica, semipedalis, 7–8 lin. diam. ; bracteæ ovatæ scariosæ, persistentes, floribus breviores. *Perianthium* campanulatum, rubrum, 2 lin. longum, segmentis ovatis obtusis tubo subtriplo brevioribus. *Stamina* hypogyna, distincte exserta, filamentis filiformibus, antheris parvis oblongis. *Ovarium* globosum, stylo subulato.

Natal : Klip river country, *Mrs. Katherine Saunders* ; *Wood*, 3895.

The genus *Notosceptrum* has entirely the habit of *Kniphofia*, from which it differs by its short bell-shaped perianth. When I originally described in 1877 the two Angolan species collected by Welwitsch I did not separate them from *Kniphofia*. This was done by Mr. Bentham, when he worked out the order for the 'Genera Plantarum.' None of the species have been brought into cultivation, and this is the first time the genus has been figured.—J. G. Baker.

Fig. 1, bract ; 2, perianth ; 3, pistil.—*All enlarged.*

Balsamodendron Playfairii, Hook. f.

Plate 2524.

BALSAMODENDRON PLAYFAIRII, *Hook. f.*

BURSERACEÆ.

B. Playfairii, *Hook. f. in Oliv. Fl. Trop. Afr.* i. p. 326 ; ut videtur species distincta, undique glabra, foliis trifoliolatis brevissime petiolatis, endocarpio lævi.

Frutex ramosus, spinosus, circiter 6 ped. altus, ramis tortuosis, cortice cinereo ; ramuli laterales foliiferi vel floriferi abbreviati, sæpe in spina acutissima terminantes. *Folia* pauca, pseudo-fasciculata, maxima 9 lin. longa, foliolis crassis integris lateralibus sæpe minutis. *Flores* tetrameri, 2–2½ lin. diametro, brevissime pedicellati, pedicellis basi bracteis minutis squamiformibus instructis. *Calycis lobi* deltoideo-rotundati, quam petala multo breviores. *Petala* stamina superantia, spathulata vel oblongo-spathulata, undulata. *Stamina* 8, alterna breviora, cum disci glandulis alternantia, longiora glandulis dorso adhærentia, antheris ovoideis apiculatis. *Drupa* oblique ovoidea, siccitate vix 3 lin. longa, apice acuta, epicarpio sæpissime (an semper ?) bivalvi ; pyrena abortu unilocularis, endocarpio dorsiventro omnino lævi, in uno latere medio longitudinaliter leviter costato et marginato, id est, vestigiis loculorum abortivorum ornato. *Semina* matura non visa.—*Commiphora Myrrha*, Engl. in DC. Monogr. Phaner. iv. p. 10, pro parte ; non *Balsamodendron Playfairii*, Schweinf. in Ber. der Pharm. Gesell. Berl. iii. (1893), p. 246 (Balsamodendron Myrrha, *Bentl. and Trim.* Med. Pl. t. 60, non Nees), nec *Commiphora Myrrha*, var. *Molmol*, Engl., Jahrb. xv. p. 95.

EAST AFRICA : Somali coast, *Playfair*.

This plant yields the *Hotai* gum-resin. As the above synonymy shows, it has been referred to two other species. In a set of admirable sketches of the fruits and leaves of various species of *Balsamodendron* communicated to the Director of Kew by Dr. Schweinfurth, are some marked Hildebrand, n. 1382 (1875), which the author identifies, in the place cited, with *B. Playfairii*, but it has relatively long petioles, often toothed leaflets and a rugose or tubercled endocarp, and is the same as that figured in Bentley and Trimen's '*Medicinal Plants*' as *B. Myrrha*. As stated in the *Kew Bulletin* 1896, p. 87, this appears to be closely allied to *B.* (*Commiphora*) *Schimperi*.—W. BOTTING HEMSLEY.

Fig. 1, leaves ; 2, a flower ; 3, a petal ; 4, stamens, disk and pistil ; 5, disk and pistil ; 6 and 7, fruit ; 8, fruit from which a portion of exocarp has been removed showing the smooth endocarp ; 9, section of a fruit showing the aborted ovules.—*All more or less enlarged.*

Asperella Duthiei, Stapf.

Plate 2525.

ASPERELLA DUTHIEI, *Stapf.*

Gramineæ. Tribe Hordeæ.

A. Duthiei, *Stapf in Hook. f., Fl. Brit. Ind.* vii. p. 375 ; affinis *A. Hystrici* et *A. sibiricæ*, sed spiculis unifloris ab utraque diversa ; præterea differt ab *A. Hystrice* spica graciliore, nec rigide stricta, et ab A. sibirica foliis angustioribus firmioribusque glumarum nervatione magis distincta aristis multo brevioribus.

Perennis Caulibus alte vaginatis glabris circa 3 ped. altis. *Foliorum vaginæ* glabræ, ad nodos tenuiter adpresseque villosulæ, intermediæ ad 5 poll. longæ ; ligulæ truncatæ, minutissime ciliolatæ ; laminæ lanceolatæ, setaceo-acutatæ, tenues, utrinque scabridæ, glabræ, ad 10 poll. longæ, ad $7\frac{1}{2}$ lin. latæ. *Spica* subflexuosa, 6 poll. longa, rhachi pubescente. *Spiculæ* fere omnes geminatæ, 1-floræ, pallidæ ; rhachilla glabra gluma in aristam transmutata terminata. *Gluma florens* lanceolata, 7-nervis, in nervis asperula, 5 lin. longa, arista recta fere duplo longiore. *Palea* glumæ subæquilonga. *Lodiculæ* obovatæ, pilosulæ. *Ovarium* superne pilosum.

India : Tihri Parhwal, 7,000–8,000 feet, *J. F. Duthie*, 14564. China : Chienshih, south-west Hupeh, *A. Henry*, 5918.—O. Stapf.

Fig. 1, a ligule ; 2, rhachilla with modified terminal glume ; 3, a pair of spikelets ; 4, flowering glume ; 5, palea ; 6, a lodicule ; 7, pistil.—*All enlarged.*

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VOL. VI.

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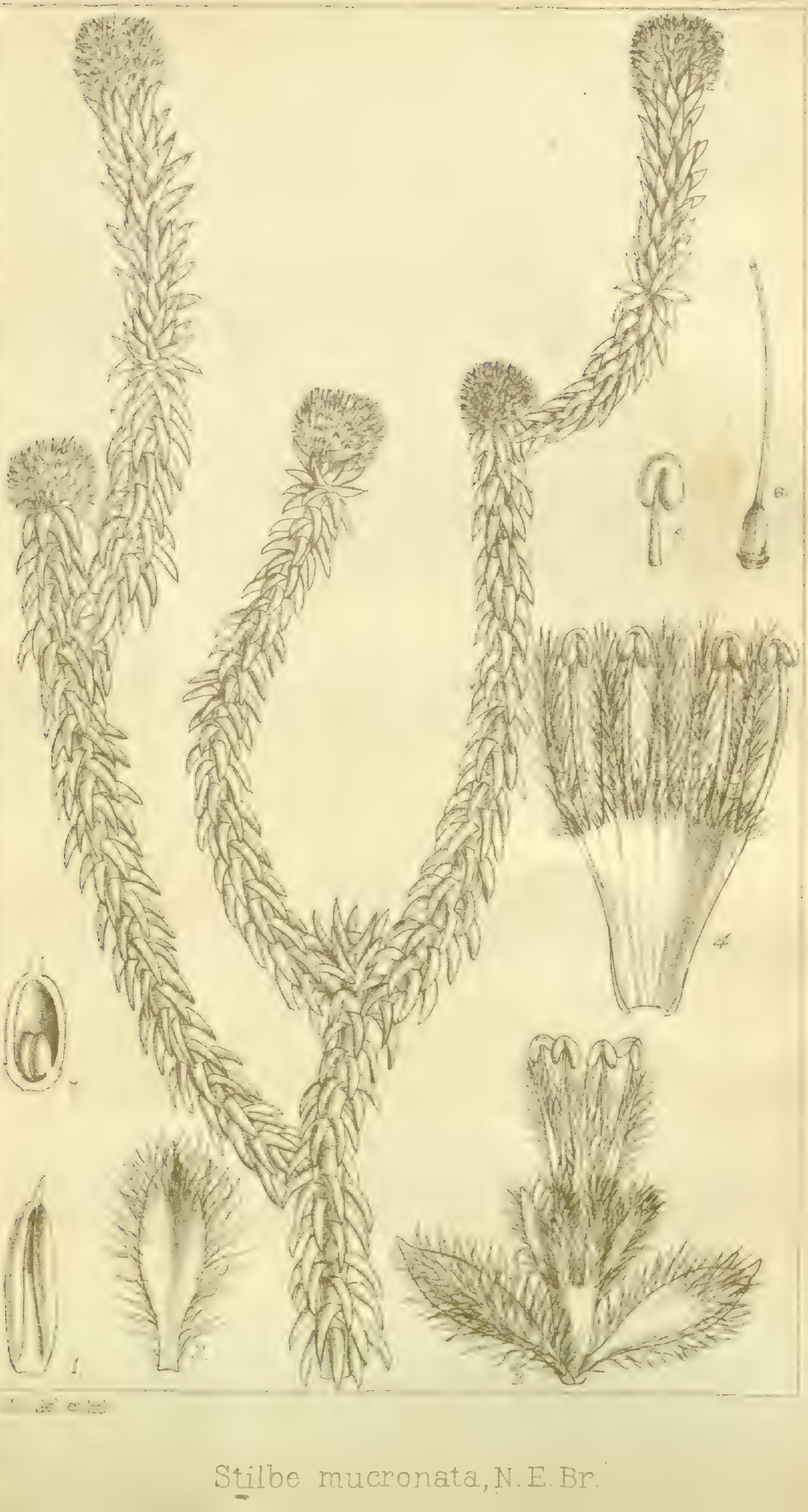
ERRATUM

In the letterpress to plate 251.2, p. 2, line eleven from the top, for *Moa* read *Dodo*.



Stilbe mucronata, N.E.Br.

Plate 2526.

STILBE MUCRONATA, *N. E. Brown.*

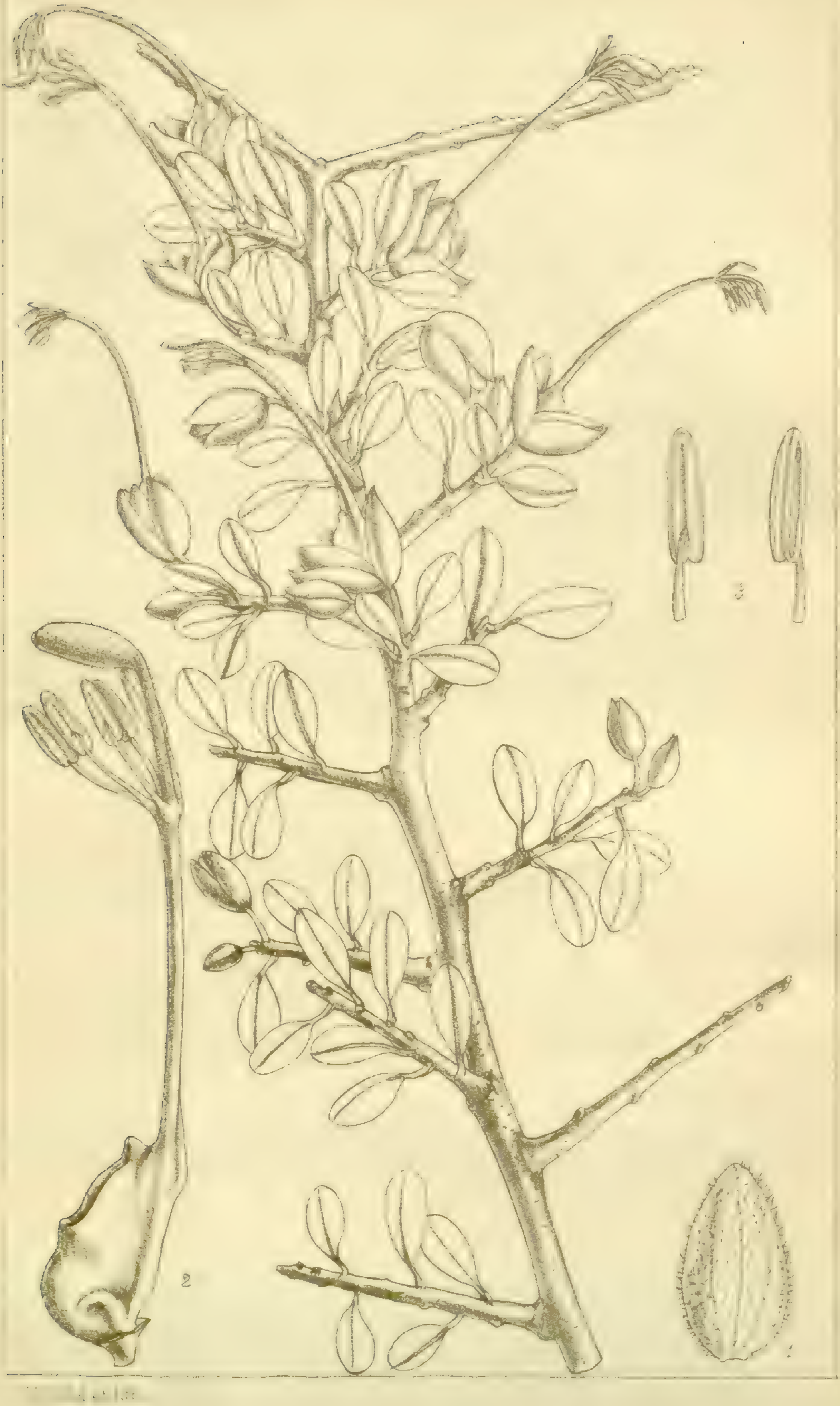
Verbenaceæ.

S. mucronata, *N. E. Brown* (*sp. nov*); *S. phylicoidi* affinis, sed foliis reflexis subtus tomentosis facile distinguitur.

Frutex 1–2 ped. altus, erectus, ramosus, ramis dense villoso-tomentosis. *Folia* conferta verticillata, 4–5-na, reflexa vel patentia, rarissime suberecta, 2–4 lin. longa, $\frac{3}{4}$ lin. lata, linearia vel anguste deltoideo-attenuata, brevissime mucronata, juniora sericeo-tomentosa, mox supra glabra, subtus tomentosa, margine revoluta. *Capitula* subglobosa, alba, circa 6 lin. diam. *Bracteæ* anguste lanceolatæ vel oblanceolatæ, acutæ, calyci subæquilongæ, vel interdum late lanceolatæ, apice plus minusve foliiferæ mucronatæ quam calyx longiores, dorso marginibusque dense villoso-barbatæ, $1\frac{1}{2}$-$2\frac{1}{2}$ lin. longæ, $\frac{1}{3}$–$\frac{3}{4}$ lin. latæ. *Calyx* infundibuliformis, $1\frac{1}{2}$–$1\frac{3}{4}$ lin. longus, ultra medium 5-lobus, lobis lanceolatis acutis, intus marginibusque dense villoso-barbatis dorso infra apicem glabris. *Corollæ* tubus infundibuliformis, $1\frac{1}{3}$–$1\frac{1}{2}$ lin. longus, utrinque glaber, lobi quinque, 1 lin. longi, in basi $\frac{1}{4}$ lin. lati, erecti, lineari-attenuati, acuti, intra dense villoso-barbati. *Stamina* 4, e sinibus corollæ enata, $1\frac{1}{2}$ lin. longa. *Ovarium* glabrum, uniloculare; stylus fere 2 lin. longus, glaber. *Ovula* 2, e basi ovarii erecta. — *Phylica mucronata*, E. Mey. in Drège Zwei Pfl. Docum. p. 84, nomen tantum.

South Africa: Lowrys Pass, Stellenbosch Division, at 1,000–2,000 feet, *Burchell*, 8221; *Drège*. Houwhoek Mountains, Caledon Division, at 1,400 feet, April, 1895, *Bolus*, 8409; between Palmiet River and Lowrys Pass, *Burchell*, 8172.—N. E. Brown.

Fig. 1, leaf, seen from beneath; 2, flower and bracts; 3. bract; 4, corolla laid open; 5, anther; 6. pistil; 7, longitudinal section of ovary. *All enlarged.*



Cadaba termitaria, N.E.Br.

Plate 2527.

CADABA TERMITARIA, *N. E. Brown.*

Capparideæ. Tribe Cappareæ.

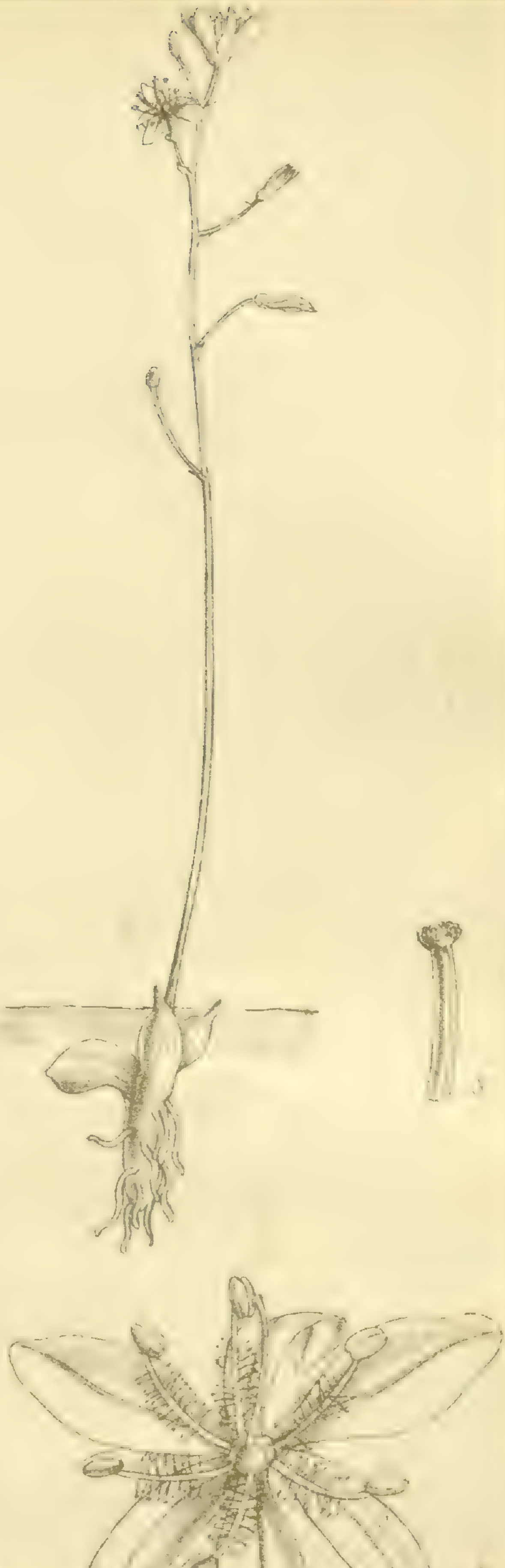
C. termitaria, *N. E. Brown (sp. nov.)*; *C. farinosæ* affinis, differt floribus majoribus apetalis et nectario androphoro adnato.

Ramorum cortice cinereo, ramuli horizontaliter patentes, ½ 2½ poll. longi, dense albido-pulverulenti. *Folia* petiolata, coriacea, obovato-oblonga, obtusa, pulverulenta, 3–7 lin. longa, 1½–3 lin. lata, petiolis 1 -1½ lin. longis. *Flores* 1–3 ad apices ramulorum dispositi. *Pedicelli* 2½–4 lin. longi. *Sepala* exteriora compresso-cymbiformia acuta, 6 lin. longa, 2½ lin. lata, interiora plana ovata, acuta, 6 lin. longa, 3–3½ lin. lata, omnia viridia pulverulenta. *Petala* nulla. *Stamina* 5, fere ad apicem gynophori adnata, filamenta 3½–4 lin. longa. *Gynophorum* 19 lin. longum, curvatum. *Nectarium* posticum, 6 lin. longum, 2½–3 lin. latum, androphoro omnino adnatum, ovato-oblongum, valde compressum, ore obliquum, basi rotundatum saccatum.

South Tropical Africa: Mashonaland, at 4,300 feet, *Hartley*; *Marshall.*

This species somewhat resembles *C. farinosa*, Forsk., in appearance, but is at once distinguished by the absence of petals and by the large, much compressed nectary, adnate to the androphore, in which character it differs from all the other species of the genus. From *C. natalensis*, Sond.—figured in Harvey's *Thes. Cap.* i. t. 60—it is distinguished by its larger flowers and much shorter pedicels, as well as by the adnate nectary. Its discoverer, Mr. G. A. K. Marshall, notes on his label that it 'grows only on the large ant-heaps made by termites' and that it is the 'food plant of the butterflies *Teracolus Wallengrenii*, Butl., and *T. Topha*, Wal.' By an oversight the flowers were drawn in an inverted position.—N. E. Brown.

Fig. 1, a sepal; 2, a flower, sepals removed; 3, anthers. *All enlarged.*



M.S.del et lith.

Bulbine mesembryanthemoides, Haw.

Plate 2528.

BULBINE MESEMBRYANTHEMOIDES, *Haw.*

Liliaceæ.

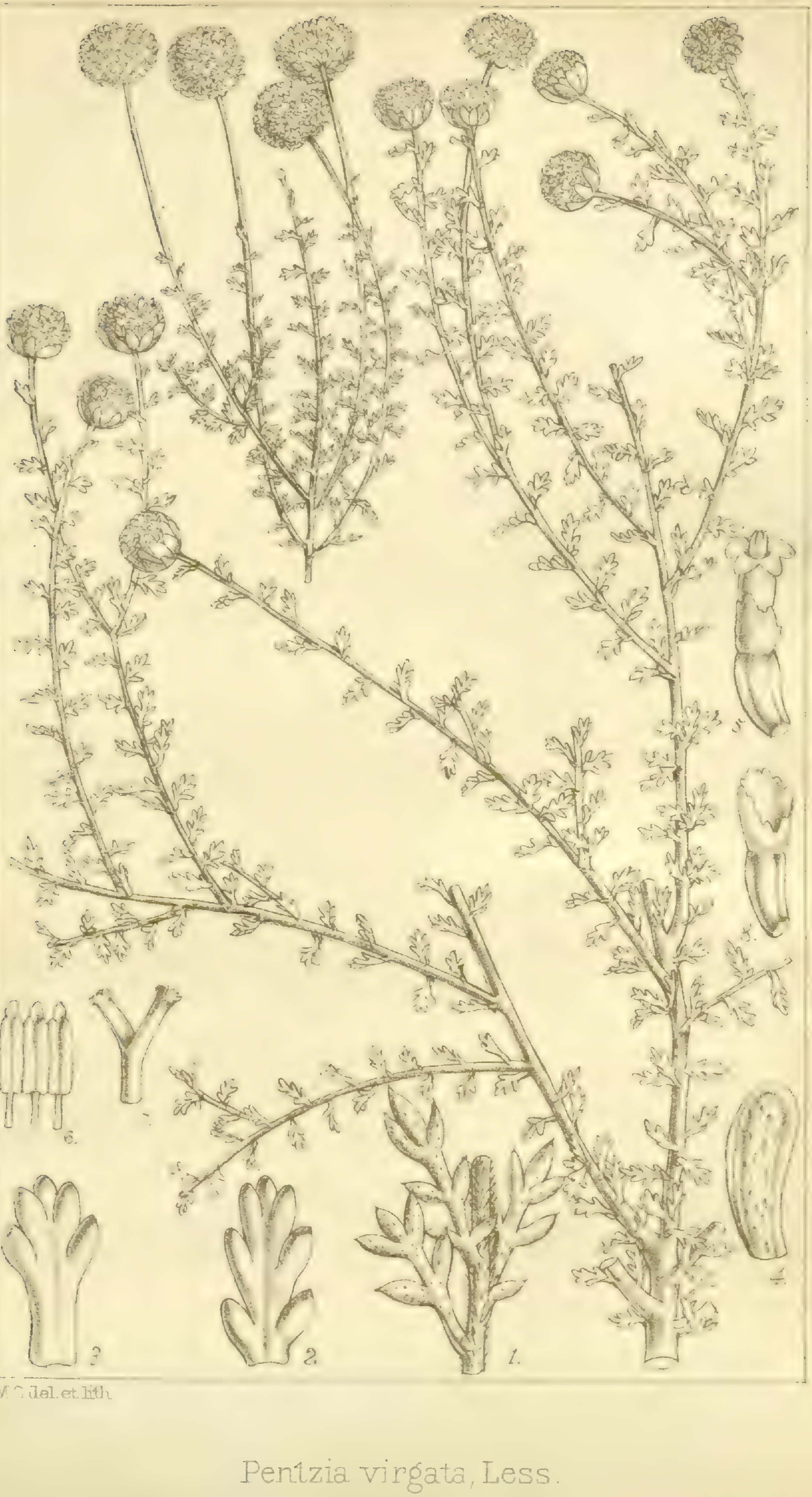
B. mesembryanthemoides, *Haw. in Tilloch Phil. Mag.* 1825, p. 31 ; species insignis foliis subterraneis ab omnibus distincta.

Tubera $\frac{1}{5}$ poll. longa, $2\frac{1}{4}$–4 lin. crassa, oblonga, attenuata, carnosa, simplicia vel subpalmatifida. *Folia* 2 3, omnino nisi quod apices emarcidi terram perrumpunt, subterranea, $\frac{1}{4}$ -$1\frac{1}{4}$ poll. longa, 2 3 lin. crassa, crasso-carnosa, pagina altera plana, altera valde convexa, striata, viridia, glabra. *Pedunculus* simplex, tenuis, erectus, glaber, parte nuda 2 -3 poll. longa, parte florigera $\frac{1}{3}$ -$1\frac{3}{4}$ poll. longa. *Flores* 2 6, laxe racemosi, lutei. *Bracteæ* $\frac{1}{2}$ -1 lin. longæ, ovatæ, acuminatæ, membranaceæ. *Pedicelli* 2 -$4\frac{1}{2}$ lin. longi, filiformes, glabri. *Perianthii* segmenta 2 $2\frac{1}{2}$ lin. longa, glabra, exteriora circa $\frac{2}{3}$ lin. lata, lineari-oblonga, obtusa, interiora 1 -$1\frac{1}{4}$ lin. lata, elliptico-lanceolata, obtusa. *Staminum* filamenta pilis capitatis barbata. *Ovarium* globoso-trigonum, glabrum ; stylus filiformis, glaber, stigmate simplice. *Schultes Syst. Veg.* vii. p. 448 ; *Kunth Enum.* iv. p. 568 ; *Baker in Flor. Cap.* vi. p. 365. Anthericum mesembryanthemoides, *Baker in Journ. Bot.* 1872, p. 136.

South Africa : among shrubs near the Zwartkops River, Uitenhage Division, *Zeyher*, 1068 ; Albany Division, *Bowker*.

Concerning this curious plant Professor P. Macowan, who has sent tubers to Kew, writes : 'I am sending you a little postal-box containing *Bulbine mesembryanthemoides* from Wolve Fontein. It is not easily detected ; the two swollen leaves lie almost underground, and at the flowering stage have almost always lost by exsiccation such part as protrudes into the hot pulsating Karoo atmosphere. The underground part is alive and green, the ragged brown projecting tips are quite dead. I am fortunate in being able to distribute it in a fruiting state.' The accompanying plate was prepared almost entirely from a coloured drawing in the Kew collection by James Bowie, dated 1823.—N. E. Brown.

Fig 1, a flower ; 2, the same with two of the perianth-segments removed ; 3, apex of style and stigma ; 4, transverse section of ovary. *All enlarged.*



M C del. et lith

Pentzia virgata, Less.

Plate 2529.

PENTZIA VIRGATA, *Less.*

Compositæ. Tribe Anthemideæ.

P. virgata, *Less. Syn. Comp.* p. 266; P. globosæ affinis, differt involucri squamis obtusis.

Frutex 6–12 poll. altus, ramosissimus. *Rami* canescentes. *Folia* alterna, parva, 1–5 lin. longa, ½–3 lin. lata, pinnatisecta vel trifida, canescentia; lobi utrinque 2–3, lineares, obtusi. *Capitula* ad apices ramulorum solitaria, breviter pedunculata, 2–4 lin. diam., multiflora, discoidea. *Involucri bracteæ* pluriseriatæ, interiores gradatim longiores, 1–1½ lin. longæ, ½–¾ lin. latæ, oblongæ, obtusæ, carinatæ, marginibus scariosæ. *Corolla* tubulosa, subcompressa, supra medium parum dilatata, brevissime 5 dentata, glandulosa. *Pappus* ½ lin. longus, oblique tubulosus, antice fissus, irregulariter dentatus. *Achænia* ⅔ lin. longa, obliqua.—*P. cotuloides*, DC. Prod. vi. p. 138. *Chrysanthemum incanum*, Thunb. Fl. Cap. ed. Schult. p. 693.

South Africa: common, especially in dry regions, from Little Namaqualand and Worcester Division to Albany and the Orange Free State.

This is much relished by sheep, and valuable as a fodder plant in dry, hot countries where few other plants will succeed. It is said to impart a peculiar and agreeable flavour to mutton. For further particulars see *Kew Bulletin*, 1896, p. 129.—N. E. Brown.

Fig. 1–3, various forms of leaves; 4, bract from the involucre; 5, a floret; 6, anthers; 7, style branches and stigmas; 8, an achene. *All enlarged.*

M S. del et lith

Crassula acinaciformis, Schinz.

Plate 2530.

CRASSULA ACINACIFORMIS, *Schinz.*

Crassulaceæ.

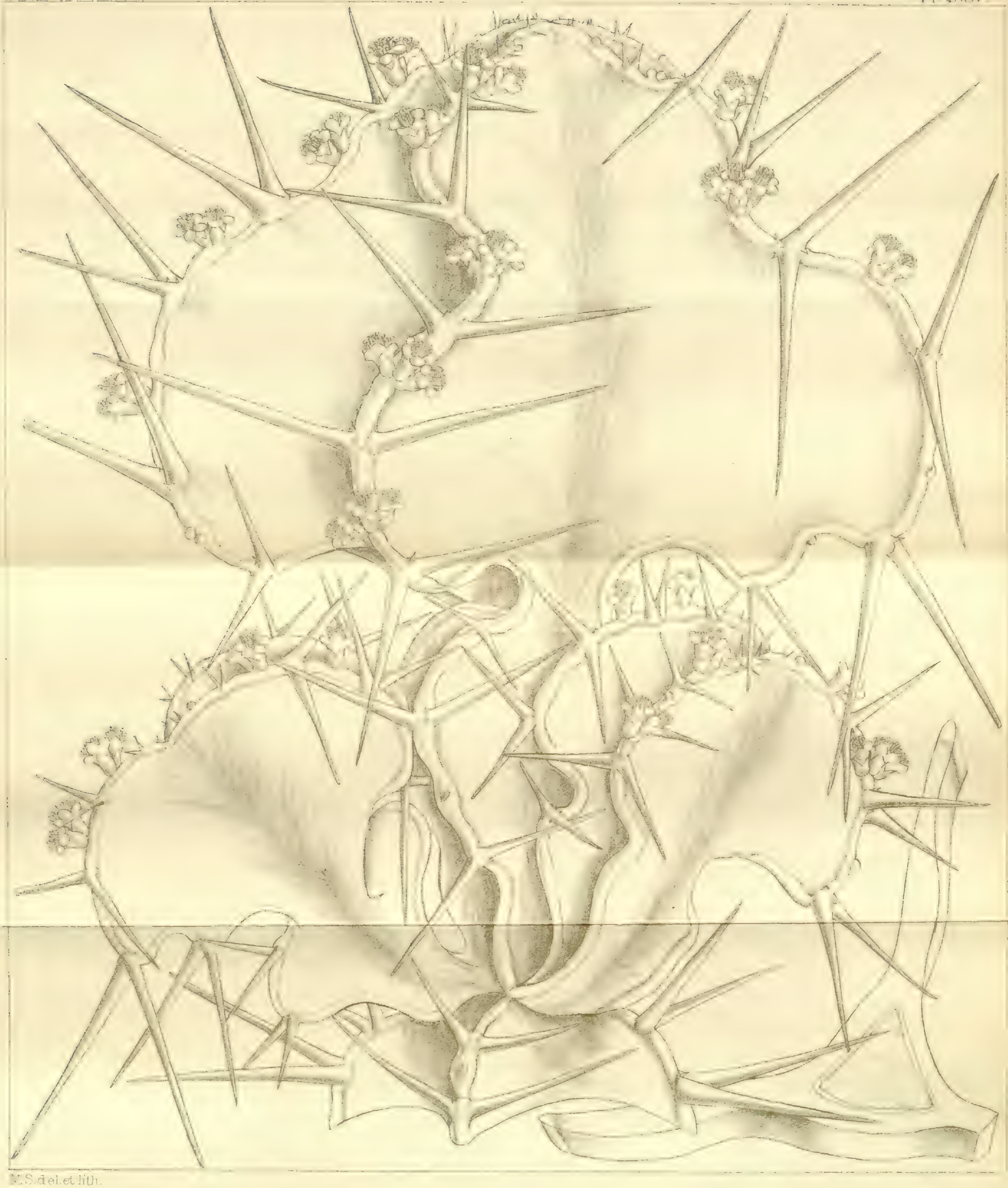
C. acinaciformis, *Schinz in Bull. Herb. Boiss.* ii. 204; species habitu aloiformis distinctissima.

Caulis erectus, cum inflorescentia 4–5 ped. altus, robustus, 1–1½ poll. crassus, apice dense foliosus, basi nudus. *Folia* 10–18 poll. longa, basi 1½–2½ poll. lata, aloiformia, conferta, rosulata, valde recurvata, recta vel leviter falcata, sessilia, e basi ad apicem gradatim attenuata, acuminata, glabra, subflaccida, minute cartilagineo-serrata, utrinque viridia, nec glauca. *Flores* parvi, citrini, dense corymbosi, breviter pedicellati; corymbi circiter 18 poll. diametro, pedicellis parce papillosis scabridis; bracteæ sessiles, attenuato-acuminatæ, ciliatæ. *Calyx* ½ lin. longus, glaber, usque ad medium 5-lobus; lobi ¼ lin. longi, ovati, acuti. *Petala* 1½ lin. longa, ½ lin. lata, oblanceolato-oblonga, obtusa, glabra, apice dorso minute tuberculata. *Stamina* 5, petalis æquilonga. *Squamæ hypogynæ* ¼ lin. longæ, cuneato-obcordatæ, quam carpella subtriplo breviores.—*C. aloides*, N. E. Brown in Kew Bull. 1896, p. 161.

South Africa: Houtbosch, Transvaal, *Rehmann*, 6375; hillsides, in damp places near Barberton, at 2,000–4,000 ft. *Galpin.*

This plate was prepared from a plant raised at Kew from seed, and dried specimens, sent by Mr. Galpin.—N. E. Brown.

Fig. 1, margin of leaf; 2, a bracteole; 3, a flower; 4, pistil and hypogynous scales. *All enlarged.*



M.S. del. et lith.

Euphorbia grandicornis Goebel.

M.S del. et lith.

Euphorbia grandicornis, Goebel

Plates 2531 and 2532.

EUPHORBIA GRANDICORNIS, *Goebel.*

Euphorbiaceæ.

E. (§ **Diacanthium**) **grandicornis,** *Goebel, Pflanzenbiol. Schilder.* i. *pp.* 42, 59 et 63, *ff.* 26, 29, et 30 ; inter species affines spinis longis validis insignis.

Frutex succulentus (exemplum in horto Kewensi cultum 6-pedale), e basi ramosus, spinosus, aphyllus. *Rami* 3-6 poll. diam., constricto-articulati, alte 3-4 costati, glabri, virides, nec glauci. *Articuli* 2-5 poll. longi, in ambitu reniformes vel subsagittato-ovati. *Costæ* alæformes $1\frac{1}{2}$-3 poll. latæ valde compressæ, marginibus induratis albo-cinereis instructæ. *Nodi* biformes, steriles et florigeri alternantes ; steriles spinis binis $\frac{1}{2}$-$1\frac{3}{4}$ poll. longis, validis, divergentibus, basi unispinulosis, albo-cinereis armati ; florigeri spinis minutis $\frac{1}{4}$-$\frac{1}{2}$ lin. longis instructi. *Involucri* sæpe terni, unisexuales, (masculini tantum visi,) campanulati, brevissime pedunculati, 5-glandulosi, fauce 5 squamata, basi extus bibracteati ; bractea unaquæque involucrum fœmineum rudimentare integens. *Glandulæ* 1 lin. longæ, $1\frac{1}{2}$ lin. latæ, transverse oblongæ, integræ, rotundatæ, lutescentes. *Squamæ* faucis glandulis alternantes, $\frac{2}{3}$ lin. longæ et latæ, subquadratæ, apice breviter fimbriatæ. *Flores* omnes masculini, bracteolis membranaceis lacerato-fimbriatis intermixti.—*Neubert, Deutsches Gart. Mag.* xlvi. p. 291 *cum ic.*

South Africa : Umfolosi River, Zululand, *Stone.*

Described and figured from a plant cultivated at Kew. This remarkable and very distinct species seems more nearly related to *E. lemaireana*, Boiss. than to any other described species, but is readily distinguished from all by its very long, stout spines. The involucres appear to be entirely unisexual, all that I have examined being male, without a trace of a female flower within them. At their base, however, completely concealed under the bracts are two very rudimentary lateral involucres, in each of which a very young female flower was found, which possibly under natural conditions may develop and fructify, but in the Kew plant has not done so ; the whole inflorescence falling off after the pollen is shed.—**N. E. Brown.**

Plate 2532 : Fig. 1, inflorescence ; 2, longitudinal section of an inflorescence ; 3, part of an involucre showing the glands and the scales at the throat ; 4, a scale from the throat of the involucre ; 5, bracteoles ; 6, male flowers. *All enlarged.*

Ficus heteromorpha, Hemsl.

M.S. del et lith

Ficus heteromorpha, Hemsl.

Plates 2533 and 2534.

FICUS HETEROMORPHA, *Hemsl.*

Urticaceæ. Tribe Artocarpeæ.

F. (§ **Eusyce**) **heteromorpha**, *Hemsl.* (*sp. nov.*) ; inter species sinenses ob folia per-variabilia insignis.

Frutex a 1 ped. fructificans, sed interdum arborescens, usque ad 20 ped. altus, ramis floriferis fructiferisque glabris vel cito glabrescentibus, cortice rubescente. *Folia* sæpius longe graciliterque petiolata, tenuia, lanceolata, oblonga, ovata vel elliptica, cum petiolis usque ad 9 poll. longa, integra, paucidentata, obsolete trilobata, infra medium distincte constricta vel interdum alte trilobata, sinibus latis, lobo terminali multo majore, basi cuneata, rotundata, vel cordata, apice gradatim vel subite acuminata, subtus primum puberula, supra leviter scabrida. *Receptacula* sessilia vel subsessilia, glabra, lævia, sæpius in axillis foliorum geminata, ovoidea vel sphæroidea, 5-7 lin. longa (♀ matura non visa). *Involucri bracteæ* parvæ, persistentes. *Bracteæ* ad os receptaculi ♀ erectæ. *Perianthium* 5-partitum, segmentis linearibus. *Flores masculini* longe pedicellati, triandri. *Flores gallipari* sessiles, ovario globoso stipitato. *Flores feminei* sessiles, ovario sessili, stylo brevi.

China : various localities in the provinces of Kiangsi, Hupeh, and Szechuen, *A. Henry*, 1933, 3439, 3924, 3965, 5541, 6362, 6550, 7443 ; *T. L. Bullock*, 227, 228 ; *A. E. Pratt*, 719.

The leaves of this species are exceedingly variable, but there is almost always a trace, though sometimes very obscure, of the lobing which is so fully developed in the principal figure in plate 2533. There is less variability in the receptacles, which are always sessile, and the smooth bark is usually of a red-brown colour. Mr. Bullock's 227 (plate 2534), bearing female flowers, was only a foot high ; and Mr. Henry describes his 5541, bearing male receptacles, as a shrub two feet high. On the other hand, his 7443, which is very much like Mr. Bullock's 228, of which a leaf is represented in plate 2534, is described

as a tree twenty feet high, though this may have resulted from an error. All the other numbers, where dimensions are given, are small shrubs.—W. Botting Hemsley.

Plate 2533: The principal figure and the dissections of the male and gall flowers are from Mr. Henry's 6362, and the upper of the detached leaves his 3439, the lower his 1933. Fig. 1, a male receptacle; 2, section of the same; 3, a male flower; 4. a gall flower; 5, section of the same enclosing *Cynips*; 6, female from Henry's 7443; 7, pistil; 8, fruit; 9, embryo. *All enlarged.*

Plate 2534: The branch bearing female flowers is Mr. Bullock's 227, and the dissections are from the same; the detached leaf on the right is his 228, which he regarded as the same species as 227; the detached leaf to the left is Mr. Henry's 3965. Fig. 1, a female receptacle; 2, section of the same; 3, female flower; 4, pistil. *All enlarged.*

Fungi Longiani Sterc.

Plate 2535.

FICUS KINGIANA, *Hemsl.*

Urticaceæ. Tribe Artocarpeæ.

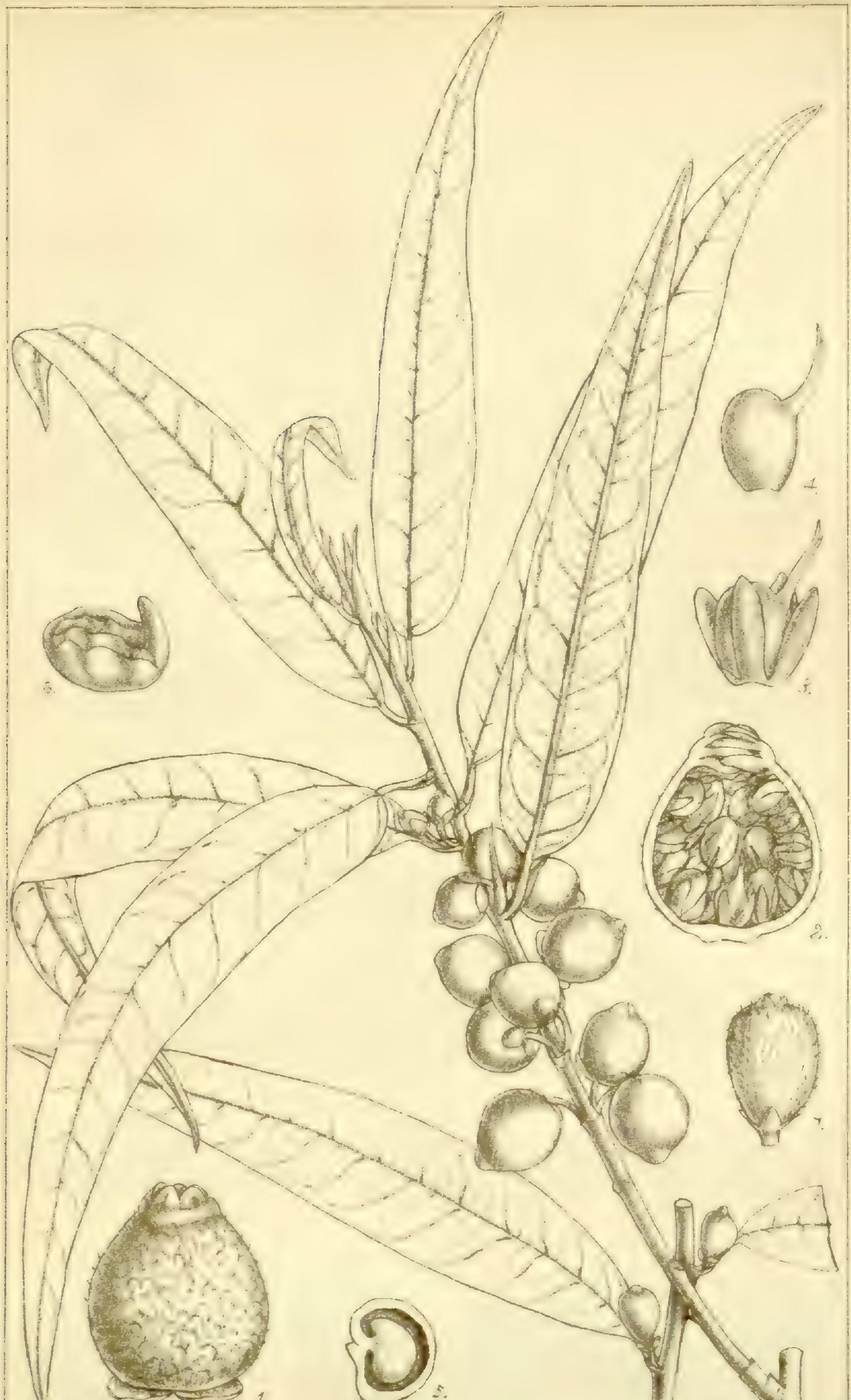
F. (§ **Sicydium**) **kingiana**, *Hemsl.* (*sp. nov.*) ; species ex affinitate *F. sikkimensis*, a qua differt foliis supra scabridis et pedunculis longioribus.

Frutex vel arbuscula 15-20-pedalis, ramulis fructiferis confertis gracillimis glabris, internodiis quam folia multo brevioribus. *Folia* breviter petiolata, tenuia, demum vix coriacea, supra scabrida, lanceolata, interdum usque ad 5 poll. longa, sed sæpius multo minora, acuminata, basi cuneata, integra, a basi triplinervia, venis subtus demum sat conspicuis. *Receptacula* ad axillas foliorum geminata, inæqualiter pedunculata, scabriuscula, globosa, circiter 3 lin. diametro ; pedunculi graciles, ad medium bracteis 2 minutis instructi, longiores 3-4 lin. longi. *Bracteæ* ad os receptaculi minutæ, appressæ. *Flores masculini* sessiles, monandri (rarissime pseudo-hermaphroditi) ; perianthii segmenta 3, vel interdum 2, oblonga. *Flores gallipari* sessiles ; perianthii segmenta oblonga, ovario stipitato. *Flores feminei* stipitati, ovario sessili.

Formosa : Tamsui, *Oldham*, 547, 548 ; Kelung, *Ford*, 40 ; Takow, *Henry*, 708, 708a ; Bankinsing, *Henry*, 166 ; South Cape, *Schmürer*, hb. Henry, 925, 1337.

It is doubtful whether this species should not be placed in Dr. G. King's section *Paleomorphe*, and near *F. gibbosa*, Bl. ; but the pseudo-hermaphrodite flowers appear to be exceedingly rare, and in other respects it strongly resembles *F. sikkimensis*, Miq. W. Botting Hemsley.

The small branch at the top and the figures 1–3 are from Mr. Ford's 40. The larger branch as well as figure 4 is from Mr. Henry's 708a. Figures 5-8 are from Mr. Henry's 1337. Fig. 1. male receptacle ; 2, section of the same ; 3, a male flower ; 4, a gall flower ; 5, female receptacle ; 6, section of the same ; 7, a female flower ; 8, pistil. *All the numbered figures enlarged.*



M.S. del et lith

Ficus stenophylla, Hemsl.

Plate 2536.

FICUS STENOPHYLLA, *Hemsl.*

Urticaceæ. Tribe Artocarpeæ.

F. (§ **Eusyce** ?) **stenophylla**, *Hemsl.* (*sp. nov.*) ; species foliis angustis a *F. pyriformi* receptaculis breviter pedunculatis sphæroideis differt.

Frutex paucipedalis, jam a 2 ped. altus fructificans, glaber vel glabrescens, ramulis gracilibus internodiis brevissimis. *Folia* brevissime petiolata, tenuia, vix coriacea, lineari-lanceolata, 2–4 poll. longa, 4–8 lin. lata, utrinque attenuata vel basi subrotundata, lævia, venis inconspicuis. *Receptacula* feminea tantum visa, subsessilia, vel breviter pedunculata, conoidea vel sphæroidea, 4–5 lin. diametro, glabra vel leviter puberula. *Involucri bracteæ* minutæ, rotundatæ, persistentes. *Bracteæ* ad os receptaculi exteriores suberectæ.

China : Hainan, *A. Henry*, 8716 ; Szechuen, on the Min River, *E. Faber*, 446 ; Hupeh, various localities, *A. Henry*, 2963, 4350, 4350, A.

It is with some amount of misgiving that this has been separated from *F. pyriformis*, Hook. et Arn., though by a combination of characters it is easily distinguished, at least so far as the material under observation is concerned. - W. Botting Hemsley.

The large branch and figures 1–6 are Mr. Henry's 8716. and the remainder his 446. Fig. 1, female receptacle ; 2, section of the same ; 3, a flower ; 4, pistil ; 5, ripe achene in section ; 6, embryo. ***All enlarged.***

PY 25537

Omphalea megacarpa, Hemsl.

Plate 2537.

OMPHALEA MEGACARPA, *Hemsl.*

Euphorbiaceæ. Tribe Crotoneæ.

O. megacarpa, *Hemsl.* (*sp. nov.*); foliis membranaceis lanceolatis, fructu maximo.

Frutex alte in arbores scandens, caulibus 300-400 ped. longis. *Folia* pauca delapsa tantum visa, graciliter petiolata, membranacea, lanceolata, cum petiolo 8–12 poll. longa, 2–3 poll. lata, undique glabra, subtus pallidiora, venis primariis lateralibus utrinque circiter 6 longe arcuatis, venis ultimis tenuissimis sed sat conspicuis. *Flores* . . . *Fructus* ovoideus et 2-spermus vel depresso globosus et 3-spermus; pericarpium carnoso-fibrosum; septa demum omnino evanescentia. *Semina* subhemisphæroidea vel subtrigona, arillo (?) crasso pulposo-carnoso albido omnino vestita; testa crustacea, brunnea, verruculosa; albumen copiosum, oleiferum; embryo centralis, cotyledonibus latis planis orbicularibus.

West Indies: Tobago, *Dr. M. Gilloway*. There are seeds in the Museum from the same island, communicated by *Mr. M. A. Gillespie*. There are also cultivated specimens from Trinidad, *J. H. Hart*, and Grenada, *W. E. Broadway*. The latter adds that he is informed that it grows wild in the mountains of Grenada.

Mr. Broadway, Curator of the Botanic Garden, Grenada, notes that the "nuts" are edible. Mr. Gillespie states that the negroes use the seeds as a drug and have great faith in their sustaining powers on long journeys. Mr. Hart, Superintendent of the Botanic Garden, Trinidad, believes, from practical experience, that the seed will afford a valuable and safe, bland purgative. The albumen is the part employed. The seed bears the name of Hunter-man's nut in Trinidad.

It is a little uncertain whether the pulpy layer covering the crustaceous testa is of the nature of an aril, or merely a soft layer of the testa itself; our material being insufficient to trace its development. Mr. Hart has tested this pulp and found that it contains

fifty per cent. of starch. The seeds of *O. diandra*, *L.*, are very much like those of *O. megacarpa*, but the foliage is very different. I have not succeeded in finding an adequate description of the fruit and seed of any of the West Indian species. Besides the West Indian and tropical American species, the genus is represented in Madagascar, the Malay Archipelago, and Eastern tropical Australia. —W. Botting Hemsley.

Fig. 1, a leaf of medium size; 2, a 2-seeded fruit, a portion of the pericarp removed, showing one of the hemispherical seeds as it appears when enveloped in the aril; 3, a seed from which a portion of the aril has been removed; 4, a seed from which the whole of the aril has been removed; 5, a section of the same showing the embryo. *All natural size.*

M S.del.et lith.

Machilus Thunbergii, Sieb & Zucc

Plate 2538.

MACHILUS THUNBERGII, *Sieb. & Zucc.*

Laurineæ.

M. Thunbergii, *Sieb. & Zucc. Fl. Jap. Fam. Nat.* ii. no. 704 ; *Hemsl. in Journ. Linn. Soc.* xxvi. p. 377 ; inter species sinenses calyce fructifero aucto reflexo recognoscenda.

Arbor 20–30-pedalis (fide A. Henryi) ramulis foliis floribusque undique glabris vel cito glabrescentibus. *Folia* ad apices ramulorum conferta, distincte petiolata, rigide coriacea, lanceolata, 2–5 poll. longa, obtuse acuminata, basi cuneata, subtus pallidiora, sed vix glauca. *Flores* 4–6 lin. diametro, racemosi, racemis laxis paucifloris e basi innovationum enascentibus folia subæquantibus ; pedicelli graciles, 4–6 lin. longi. *Perianthii segmenta* ovato-lanceolata vel anguste lanceolata, vix acuta. *Stamina* perfecta 9, antheris 4-locellatis, 3 interiorum extrorsis. *Ovarium* glabrum. *Bacca* globosa, 5–6 lin. diametro.

Eastern Asia : Hongkong and Chekiang westward to Szechuen, in China ; also in Formosa, Japan, and the Corean Archipelago.

Shavings of the wood of this tree yield a mucilage, when soaked in water, which is used by Chinese ladies in 'bandolining' their hair. Dr. E. Bretschneider (*Notes on some Botanical Questions connected with the Export Trade of China*, 1880, p. 14) mentions the shavings as being exported from Canton to Peking under the name of *meio kao pao hua* (i.e. cosmetic glue shavings), and their probable source as *Sterculia platanifolia*. In 1895 G. M. H. Playfair, Esqr., H.B.M. Consul at Ningpo, sent to Kew specimens in leaf of a tree, called *tiao chang*, which he had collected in the mountains near Ningpo, with the information that shavings of the wood were used for the purpose described above by the women of that part of China. These specimens were identified as *Machilus Thunbergii*, Sieb. et Zucc , and flowering specimens subsequently received from the same gentleman confirmed the identification. Mr. Playfair further adds, on the authority of Mr. A. Henry, that the Canton shavings are from the same tree. — W. Botting Hemsley.

Fig. 1, an unexpanded flower ; 2, an expanded flower ; 3. androecium ; 4, anther with its valves closed ; 5, the same open ; 6, one of the inner stamens and 2 stipitate glands : 7, a staminode ; 8, pistil in section ; 9, embryo. *All more or less enlarged.*

M.S del.et lith.

Dracaena Ombet, Kotschy & Peyr.

Plate 2539.

DRACÆNA OMBET, *Kotschy et Peyr.*

Liliaceæ. Tribe Dracæneæ.

D. Ombet, *Kotschy et Peyr. Pl. Tinn.* p. 47 ; ad *D. Draconem* canariensem arcte accedit.

Truncus furcatus, 7–8-pedalis, ramulis ultimis crassis brevibus divaricatis. *Folia* dense rosulata, ensiformia, crassa, rigida, sesquipedalia vel bipedalia, basi late ovata, dorso deorsum rotundata sursum distincte costata, facie canaliculata, margine lævia. *Panicula* ampla, breviter pedunculata, ramulis pluribus gracilibus glabris erecto-patentibus, inferioribus furcatis ; racemi laxi, cylindrici ; flores fasciculati ; pedicelli medio articulati, $1\frac{1}{2}$–2 lin. longi ; bracteæ ovatæ, minutæ. *Perianthium* albidum, cylindricum, 3 lin. longum, tubo brevissimo, segmentis linearibus flore expanso patulis. *Stamina* perianthio paulo breviora, antheris oblongis filamentis paulo brevioribus. *Ovarium* oblongum, breviter stipitatum ; stylus simplex, subulatus, stigmate trilobato. *Bacca* globosa.—*Schweinf. in Bull. Herb. Boiss.* ii. *App.* ii. p. 76.

East Tropical Africa : mountains of Anguab, west of Suakin, at 2,500–4,000 ft., *Heuglin* ; mountains of Erkanit, west of Suakin, at 5,000 ft., *Schweinfurth*, 250 ; mountains of Erythræa, 4,500 6,500 ft., *Schweinfurth.*

The Nubian Dragon's-blood tree differs from the well-known Canarian species by its shorter, thicker leaves, shorter pedicels and smaller flowers, with scarcely any tube. It grows gregariously upon the hills of Nubia and Northern Abyssinia, mixed with Acacias and frutescent Euphorbias. The panicles are developed in May and June, and the flowers are a favourite food of camels. The Tigrina name is *Asa-ara* and the Tigré name *Arob.*—J. G. Baker.

Fig. 1, section of leaf; 2, an expanded flower ; 3, stamens : 4, pistil. *All enlarged except* 1, *which is natural size.*

Impatiens Flanaganæ, Hemsl.

Plate 2540.

IMPATIENS FLANAGANÆ, *Hemsl.*

Geraniaceæ. Tribe Balsamineæ.

I. Flanaganæ, *Hemsl.* (*sp. nov.*); ab *I. capensi*, species sola ex Africa australi hactenus cognita, magnitudine et plantæ et florum valde differt.

Perennis? 1½–2-pedalis, undique glabra, caulibus ut videtur simplicibus vix carnosis, internodiis brevissimis. *Folia* alterna, longe petiolata, membranacea, ovato-oblonga, cum petiolis 6–15 poll. longa, crenato-dentata crenis apiculatis. *Flores* circiter bipollicares, racemosi; racemi axillares, laxi, longe graciliterque pedunculati, folia longe superantes. *Sepala* 5, 2 antica et 2 lateralia similia, lanceolata, acuta; sepalum calcaratum sursum curvatum. *Petala* lateralia valde inæqualiter bilobata, lobis rotundatis. *Filamenta* basi apiceque leviter cohærentia. *Capsula* immatura elevata, circiter pollicaris, glabra.

South Africa: Woods on the banks near the mouth of the St. John's river, Pondoland, *Mrs. Flanagan; Bolus*, 8729.

The number of species of *Impatiens* now known to inhabit the mountains of tropical Africa is considerable, but the very distinct one here figured is, I believe, only the second one found within the limits of Cape Colony. It is named after Mrs. Flanagan, the first discoverer, and wife of Mr. H. G. Flanagan, an ardent botanical explorer of South-Eastern Africa.—W. Botting Hemsley.

Fig. 1, a flower-bud in an advanced stage; 2, spurred sepal; 3, outer petal from a bud; 4, androecium. *All enlarged.*

Plate 2541.

MAIRIA CORIACEA, *Bolus.*

Compositæ. Tribe Asteroideæ.

M. coriacea, *Bolus* (*sp. nov.*); inter species subcaulescentes foliis amplis crassissimis et scapis numerosis distinctissima.

Herba caudice incrassato fusco-lanato. *Folia* 2 vel 3, radicalia, valde coriacea, obovato-spatulata, 4–7 poll. longa, apice rotundata, deorsum attenuata, integra vel interdum apicem versus obscure lobulata, superne glabra, inferne interdum araneoso-lanata, demum glabrescentia, venis distantibus prominentibus. *Scapi* 4–6, sæpe monocephali, 2–4 poll. alti, atque bracteæ lineares purpurei, tomentosi. *Involucrum* turbinatum 9–12 lin. diametro, bracteis 2–3 seriatis, exterioribus lanceolatis, interioribus linearibus, omnibus denticulatis acutis purpureis tomentosis. *Flores disci* flavi, involucrum paulo superantes, achæniis eorum fertilibus. *Flores radii* purpurei, involucrum $1\frac{1}{2}$ vel fere 2-plo excedentes.

South Africa: Houw Hoek, Caledon Division, Cape Colony, at 1,100 to 2,500 ft., *Bolus*, 6940; *Schlechter*, 7440.—H. Bolus.

Fig. 1, a ray-flower; 2, a disk-flower; 3, pappus of ray-flower; 4, anthers; 5, style of disk-flower. *All enlarged.*

Glossostemon Bruguierii, Desf.

Plate 2542.

GLOSSOSTEMON BRUGUIERI, *Desf.*

Sterculiaceæ. Tribe Dombeyeæ.

G. Bruguieri, *Desf. in Mém. Mus. Par.* iii. p. 238, t. 11 ; species unica.

Herba 'perennis,' robusta, undique stellato-pubescens, scabra, ramis crassis angulatis canaliculatis, internodiis brevissimis. *Folia* alterna, crassa, papyracea, longe petiolata, rotundato-cordata, absque petiolo usque 10 poll. diametro, multilobulata atque dentata, valide palminervia, scabrida ; petiolus teres, crassus, 2–6 poll. longus. *Stipulæ* lineari-filiformes, flaccidæ, circiter pollicares, persistentes. *Flores* 'rosei,' pentameri, racemoso-corymbosi, corymbis quam folia brevioribus ; pedunculi crassi, axillares, basi petiolo breviter adnati, interdum fructum maturum et flores (an ejusdem ætatis ?) gerentes ; pedicelli graciles, bracteolis elongatis filiformibus persistentibus. *Sepala* ovato-lanceolata, acuta, dense pubescentia, quam petala dimidio breviora. *Petala* lanceolata, caudato-acuminata, longitudinaliter venosa. *Stamina* sæpe circiter 30 staminodiis 5 ligulatis petala alternantibus plus minusve adhærentia, filamentis glabris inæqualibus. *Ovarium* 5-loculare, multiovulatum, dense echinulatum atque stellato-pubescens, stylis brevibus in unum connatis. *Capsula* magna, cum spinis circiter 3 poll. longa, spinis rigidis armata, demum loculicide dehiscens (?), multisperma. *Semina* conoidea, circiter 4 lin. longa, testa crustacea ; albumen tenuissimum ; cotyledones foliaceæ, revoluto-conduplicatæ, radicula brevi.—*Dombeya arabica*, Baker in Hook. Ic. Pl. t. 2460.

South Arabia : Interior of Hadramaut, *Hirsch*, 170. Mesopotamia : in the desert around Kerkuk and at the foot of Mount Tell Kokab, *Haussknecht ; Aucher* ; barren sandstone in the Hamrir range, between 60 and 70 miles north of Bagdad, *Mockler*. Western Persia : Dizful, *Loftus*.

Kew is indebted to Rear-Admiral R. W. Blomfield for excellent specimens of this interesting plant, collected, or procured, by Colonel

Mockler, H. B. M. Consul-General at Bagdad. Ripe fruit was previously unknown. The plant figured in plate 2460 as a *Dombeya*, proves, as Dr. G. Schweinfurth pointed out to us, to be a young state of *Glossostemon*, which, however, is better placed in the Dombeyeæ than in the Buettnerieæ. It has none of the special floral characteristics of the latter group, and the fruit is not like that of any genus of either group, though it probably has the double dehiscence, loculicidal, and eventually septicidal, of *Dombeya* itself.

This plant bears the name of *moghath* at Bagdad, and some account of its uses will shortly appear in the *Kew Bulletin*. - W. Botting Hemsley.

Fig. 1, a sepal; 2, a petal; 3, a staminode and adherent stamens: 4, anthers; 5, ovary; 6, one of its numerous appendages, some of which develop into hard spines on the fruit; 7, cross section of the ovary; 8, a seed; 9, embryo intact; 10, cross section of the same with cotyledons partly unrolled; 11, embryo unrolled. *All enlarged.*

Cirsium repens, Hemsl.

Plate 2543.

ERYNGIUM REPTANS, *Hemsl.*

Umbelliferæ.

E. reptans, *Hemsl.* (*sp. nov.*); habitu *E. nasturtiifolii*, a quo differt foliis dentatis vel serratis, nec lobatis, capitulis globosis ecomatis.

Perenne, glabrum, caulibus paucis gracilibus procumbentibus, 2–5 poll. longis. *Folia* radicalia obovato-spatulata, argute serrata atque aculeata, sed vix rigida, caulina minora ovalia vel obovata. *Capitula* lateralia, solitaria, brevissime pedunculata, hemisphærica, cum bracteis patentibus 5-8 lin. diametro. *Involucri bracteæ* 6 8, lanceolatæ, integræ, rigidæ, pungentes. *Paleæ* angustæ, pungentes, flores paulo superantes. *Calycis dentes* abrupte apiculati. *Carpella* oblonga, absque calycis dentibus $\frac{1}{2}$–$\frac{3}{4}$ lin. longa, squamis parvis globosis vel ovoideis supremis subacutis omnino vestita; vittæ 9, quarum 2 commissurales, minutæ; styli erecti, calycem superantes.

Guatemala: Quezaltenango, *Bernoulli & Cario*, 2745.

This is represented in the Kew Herbarium by two small plants, and in the Berlin Herbarium by one from the same collectors. It is not closely allied to any species.—W. Botting Hemsley.

Fig. 1, a bract; 2, a pale; 3, a fruit; 4, a carpel; 5, a transverse section of the same. *All enlarged.*

Eryngium deppeanum, Ch. et Schl.

ERYNGIUM DEPPEANUM, *Ch. & Schl.*

UMBELLIFERÆ.

E. deppeanum, *Ch. et Schl. in Linnæa*, v. p. 207 ; inter species armatas foliis brevibus crebre aculeato-dentatis et capitulis parvis distinguitur.

Planta subscaposa, undique glabra, caule subsimplici 2–3 ped. alto oligocephalo. *Folia* radicalia numerosa, sessilia, linearia, angusta, circiter semipedalia, 4–6 lin. lata, acutissima, aculeato-dentata, sed vix rigida. *Capitula* subumbellatim corymbosa, interdum pauca lateralia, 3–4 lin. diametro, graciliter pedunculata. *Involucri bracteæ* 7–9, lineares, 3–4 lin. longæ, acutissimæ sed vix rigidæ. *Paleæ* flores superantes, bracteis similes sed basi latiores. *Calycis dentes* apiculati. *Carpella* semi-ovoidea, absque calycis dentibus vix lineam longa, ad angulos tantum paucisquamosa, squamis parvis obtusis ; vittæ sæpe 5, quarum 2 commissurales ; styli calycis dentes longe superantes.

MEXICO : Cerro Colorado, *Schiede & Deppe.*

The accompanying figure was prepared from a specimen in the Berlin Herbarium, which if not actually the type is doubtless the species described under the above name. I have not seen any specimen in any other herbarium which I could refer without doubt to this species ; but a longer series of specimens would be necessary, to enable one to form a correct judgment as to the amount of variation exhibited by this and allied species. I am indebted to Dr. Engler, the Director of the Berlin Botanic Garden, for the loan of the specimens of the Mexican *Eryngia* contained in the herbarium attached thereto. Like the other herbaria that I have seen, it contains several forms not met with elsewhere.—W. BOTTING HEMSLEY.

Fig. 1, portion of a leaf ; 2, a bract ; 3, a pale ; 4, a fruit ; 5, a cross section of the same. *All enlarged.*

M.S. del. et lith.

Eryngium Schaffneri, Hemsl.

Plate 2545.

ERYNGIUM SCHAFFNERI, *Hemsl.*

Umbelliferæ.

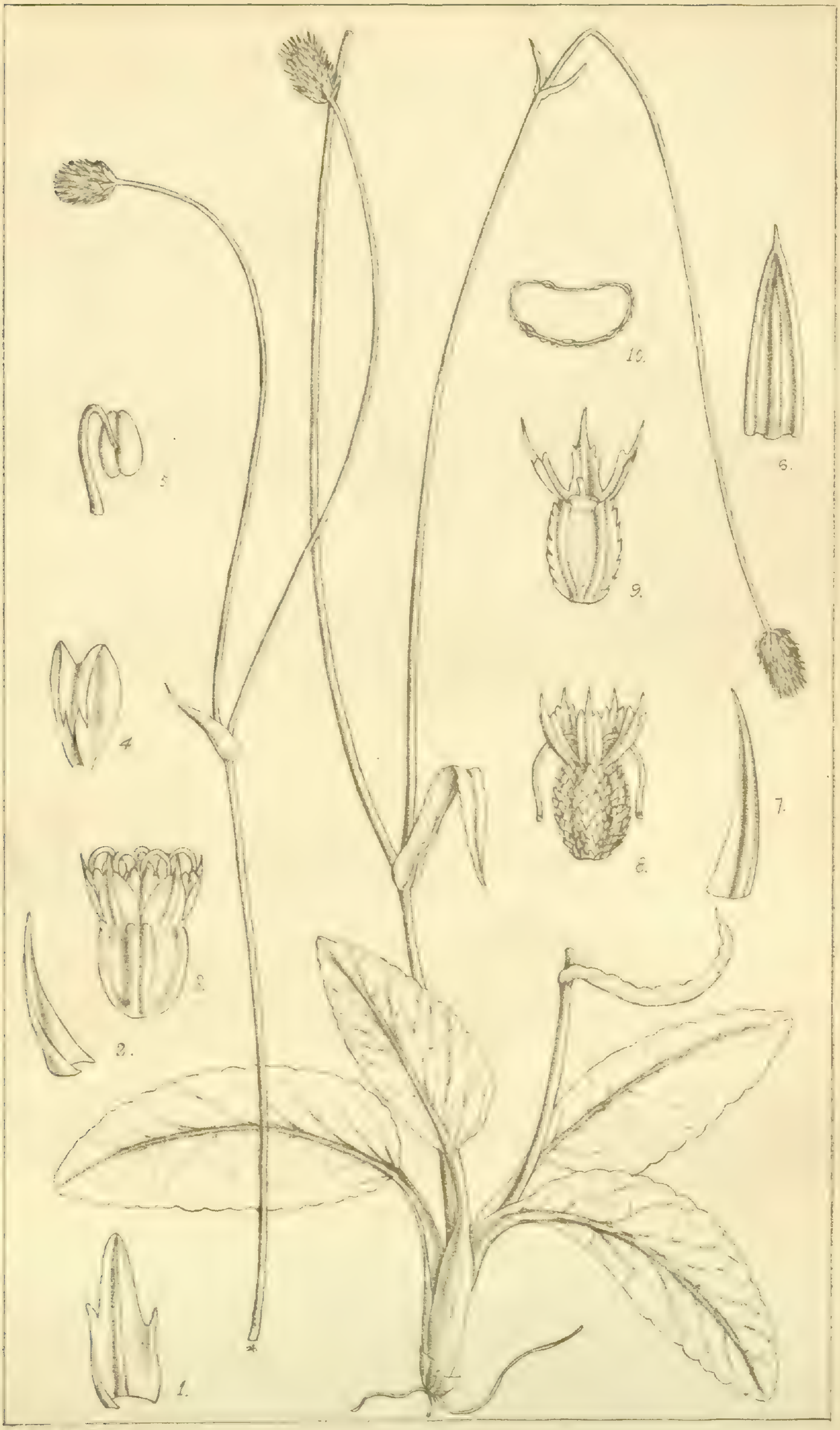
E. Schaffneri, *Hemsl.* (*sp. nov.*) ; ab *E. Bonplandi* caulibus monocephalis et foliis oblongis breviter petiolatis differt.

Perenne, glabrum, subscaposum, radicibus crassis. *Scapi* nudi vel interdum inferne foliosi, monocephali, interdum basi furcati, 6-18 poll. alti. *Folia* herbacea, crassa, petiolata, petiolo deorsum vaginante, oblonga, ovato-oblonga vel ligulata, cum petiolo 2-6 poll. longa obscure crenata. *Capitula* oblongo-ovoidea, circiter 6 lin. longa. *Involucri bracteæ* sæpius 7, angustæ, 3-4 lin. longæ, integræ vel infra medium bidentatæ, rigidæ, pungentes. *Paleæ* e basi lata subulatæ, pungentes, flores superantes. *Petala* apice inæqualiter tridentata. *Carpella* (matura non visa) paucisquamosa squamis brevibus vix acutis.

Mexico : mountains near Guajimalpan, *Schaffner*, 376 ; in Pine woods, Nevado de Toluca, at 10,000 feet, *Pringle*, 4283.

This is another species which I have only seen in the Kew and Berlin herbaria. It has been referred to *E. Bonplandi*, the fruit of which is figured in plate 2546.—W. Botting Hemsley.

Fig. 1, a bract ; 2, a pale ; 3, a flower ; 4, a petal ; 5, a carpel. *All enlarged.*



Eryngium leptopodum, Hemsl.

ERYNGIUM LEPTOPODUM, *Hemsl.*

UMBELLIFERÆ.

E. leptopodum, *Hemsl.* (*sp. nov.*) ; species ex affinitate *E. Bonplandi* sed gracilior foliis breviter petiolatis capitulis oblongis carpellis fere esquamatis.

Perenne ? omnino glabrum, caulibus erectis 6–15 poll. altis subaphyllis simplicibus 1–3 furcatis gracillimis fere filiformibus. *Folia* herbacea, crassiuscula, petiolata, petiolo basi vaginante, ovato-oblonga, cum petiolo 1–3 poll. longa, basi cuneata truncata vel cordata, crenata margine incrassato. *Capitula* longe graciliterque pedunculata, oblonga vel ovoidea, 3–5 lin. longa. *Involucri bracteæ* subulatæ vel ovatæ, integræ vel bidentatæ, flores vix excedentes. *Paleæ* bracteis similes vix rigidæ. *Carpella* (matura non visa), cum calyce vix lineam longa, apicem versus paucisquamosa.

MEXICO : Real del Monte, State of Mexico, *Coulter*, 106, 1152 ; Paso Nuevo, *Ehrenberg*, 177.

I have only seen this in the Kew and Berlin herbaria. It is remarkable among its allies for extreme slenderness and almost complete absence of scales on the fruit. The dissections of *E. Bonplandi* are from the type specimen in the Paris herbarium labelled Santa Rosa, Guanaxuato, *Bonpland.*—W. BOTTING HEMSLEY.

Fig. 1, a bract ; 2, a pale ; 3, a flower ; 4, a petal ; 5, a stamen—of *E. leptopodum*, Hemsl.

Fig. 6, a bract ; 7, a pale ; 8, a fruit ; 9, a carpel ; 10, a transverse section of the same—of *E. Bonplandi*, Delar. *All enlarged.*

Pl 2547.

Eryngium Cervantesii. Delar.

M.S. del et lith.

Plate 2547.

ERYNGIUM CERVANTESII, *Delar.*

Umbelliferæ.

E. Cervantesii, *Delar. Eryngor. Hist.* p. 47, t. 18, f. 1 (*male*); ex affinitate *E. reptantis*, a quo differt foliis radicalibus fere linearibus paucicrenulatis, carpellorum squamis biformibus.

Perenne, glabrum, caulibus numerosis gracillimis procumbentibus 3–6 poll. longis. *Folia* herbacea, radicalia linearia vel lineari-spatulata, 1–1½ poll. longa, deorsum valde attenuata, utrinque circiter 4-dentata, caulina breviora, 3–5-lobulata. *Capitula* parva, subglobosa, axillaria, solitaria, brevissime pedunculata. *Involucri bracteæ* sæpissime 5 lanceolatæ, integræ, stellatæ, rigidæ, pungentes, circiter 3 lin. longæ. *Paleæ* latæ, flores involventes, acuminatæ. *Calycis dentes* abrupte apiculati demum incurvi. *Carpella* oblonga, appendicibus biformibus elegantissimis vestita, inferioribus spiculiformibus pilis minutissimis uncinatis instructis, superioribus multo majoribus conicis cavis papillosis; **vittæ 5, minutæ; styli elongati, recurvi.**

Mexico: Jacal, in the State of Hidalgo, in grass by ponds, *W. Schumann*, in the Berlin herbarium.

The only specimens I have seen of this species are those referred to above. It is perhaps easily overlooked, or it may be rare, for many trained collectors have botanised in the region where it grows. Delaroche described it from an imperfect specimen received by Humboldt and Bonpland from Cervantes himself, who had given it the name of *E. viviparum*. It is very distinct and different from all other Mexican species, and the scales or appendages of the fruit, which are of two kinds, passing abruptly from one to the other, are the most elegant I have examined.—W. Botting Hemsley.

Fig. 1, a bract; 2 and 3, pales; 4, a flower; 5, a petal; 6, section of a carpel and seed showing the embryo; 7, a cross section of a carpel about the middle; 8, one of the upper carpellary appendages; 9, one of the lower ditto. *All enlarged.*

Cacoucia splendens. Hemsl.

Plate 2548.

CACOUCIA SPLENDENS, *Hemsl.*

Combretaceæ.

C. splendens, *Hemsl.* (*sp. nov.*) ; ex affinitate *C. velutinæ*, differt imprimis racemis longissimis bracteis amplis luteo-albidis.

Frutex scandens, ramulis robustis primum ferrugineo-pubescentibus. *Folia* superiora alterna, brevissime petiolata, coriacea, glabra vel cito glabrescentia, oblonga vel ovato-oblonga, $2\frac{1}{2}$–$3\frac{1}{2}$ poll. longa, abrupte acuminata, basi breviter cordata, venis primariis lateralibus utrinque 5–6. *Flores* speciosi, cum staminibus exsertis $1\frac{1}{2}$–$1\frac{3}{4}$ poll. longi, racemosi ; racemi laterales vel terminales, circiter pedales, recti, atque flores pedicellique ferrugineo-pubescentes ; pedicelli rigidi, 4–6 lin. longi ; bracteæ foliaceæ, petiolatæ, ovatæ, acutæ, 9–12 lin. longæ. *Calycis tubus* subcylindricus, curvus, a basi fere ad medium crassior et sulcatus, supra sulcos leviter constrictus, intus infra medium squamis transversalibus hirsutis vel fimbriatis præditus, infra squamas glaber, supra squamas parce puberulus ; lobi deltoidei, circiter 3 lin. longi. *Petala* obovoidea, pubescentia, $3\frac{1}{2}$–4 lin. longa. *Stamina* exserta circiter 3 lin., filamentis infra medium leviter puberulis. *Ovarium* 3-ovulatum stylo staminibus subæquante. *Fructus* ignotus.

C. bracteata, Laws. in Oliv. Fl. Trop. Afr. ii. p. 434, partim.

West Tropical Africa : Cameroon river, *G. Mann*, 2208.

This and the two plants represented in plates 2549 and 2550 were included by Lawson in his *C. bracteata*, and it has been deemed better to give each a new name rather than arbitrarily assign his name to any one of them.—W. Botting Hemsley.

Fig. 1, section of the lower part of a flower opened out showing the horizontal scales which shut off the lower part of the calyx-tube as a separate chamber ; 2, a petal ; 3, anthers. *All enlarged.*

Plate 2549.

CACOUCIA PLATYPTERA, *Welw.*

Combretaceæ.

C. platyptera, *Welw. in Trans. Linn. Soc.* xxvii. p. 24 : *C. splendenti* similis sed floribus multo minoribus pedicellis brevioribus bracteis minus conspicuis differt.

Frutex scandens, 10–25 ped. altus, ramulis robustis primum ferrugineo-pubescentibus. *Folia* brevissime petiolata, vix coriacea, præter petiolum glabra, ovato-oblonga, 3–6 poll. longa, abrupte obtuseque acuminata, basi leviter oblique cordata, venis primariis lateralibus utrinque 6–7. *Flores* cum staminibus exsertis $1\frac{1}{4}$ $1\frac{1}{2}$ lin. longi, racemosi ; racemi laterales vel terminales, 6–12 poll. longi, atque flores pedicellique pubescentes ; pedicelli brevissimi ; bracteæ foliaceæ, crassæ, ovatæ, aurantiacæ. *Calyx* ut in *C. splendente*. *Petala* ovata. *Fructus* orbicularis, glaber, pentapterus, $1\frac{1}{2}$ poll. diametro. *C. bracteata*, Laws. in Oliv. Fl. Trop. Afr. ii. p. 434, partim.

West Tropical Africa : Fernando Po, *Barter*, 2057 ; *Mann*, 158 ; *Kalbreyer*, 42 ; Golungo Alto, *Welwitsch*, 1752.

This may perhaps be connected by intermediate forms with *C. splendens*, of which the fruit is unknown. Should this be so, Welwitsch's name, which antedates Lawson's composite species by two years, will be the one to retain.—W. Botting Hemsley.

Fig. 1, a section of the lower part of the calyx and the ovary; 2, a petal; 3, anthers; 4, a fruit. *All except* 4 *enlarged.*

2.
4.

Plate 2550.

CAMPYLOGYNE EXANNULATA, *Hemsl.*

Combretaceæ.

Campylogyne, *Welw.* MSS. (*gen. nov.*). *Calycis tubus* curvus, infra medium constrictus, intus esquamatus, dentibus minutis. *Petala* 5, parva, ovata. *Stamina* 10, inclusa vel brevissime exserta. *Ovarium* 1-loculare, 3-ovulatum, stylus filiformis, simplex, stamina paulo superans, postice usque ad constrictionem cum calycis tubo adnatus. *Fructus* (immaturus tantum visus) pubescens, æqualiter 5-alatus. — Frutex *sarmentosus foliis omnibus oppositis.*

C. exannulata, *Hemsl.* (*sp. unica*).

Ramuli florentes elongati, recti, graciles (1–2 lin. diametro), cito glabrescentes, internodiis quam folia dimidio brevioribus. *Folia* omnia opposita, breviter graciliterque petiolata, membranacea, anguste ovato-oblonga vel lanceolato-oblonga, cum petiolo 2–5 poll. longa, apiculato-acuminata, basi rotundata vel subcordata, cito glabrescentia, venis primariis lateralibus circiter 5 subtus sat conspicuis. *Flores* ‘ex albido leviter rubescentes,’ circiter pollicares, brevissime pedicellati, in racemos breves densos terminales ac laterales crescentes ; racemi in ramulorum apicibus sæpius terni, 2–3 poll. longi, atque flores minute puberuli ; bracteæ foliaceæ, virides (?), lanceolatæ, flores fere æquantes. *Calycis tubus* curvus, infundibuliformis, infra medium tantum glaber, paullo supra basin leviter constrictus, intus parcissime pilosulus, esquamatus ; dentes minuti. *Petala* puberula, ovata, circiter 2 lineas longa. *Stamina* supra tubi medium affixa, inclusa, filamentis glabris. *Ovarium* 3 ovulatum ; stylus glaber calyce basi adnatus deinde deorsum insigniter geniculatus, stigmate filiformi. *Fructus* immaturus pubescens, æqualiter 5-alatus. *Cacoucia bracteata*, Laws. in Oliv. Fl. Trop. Afr. ii. p. 434. partim ; *Cacoucia exannulata*, O. Hoffm. in Linnæa, xliii. p. 132.

West Tropical Africa : Golungo Alto, at 1,000 to 2,400 ft., *Welwitsch*, 4349 ; Pungo Andongo, *Welwitsch*, 4350.

That *Cacoucia platyptera*, Welw. and *C. splendens*, Hemsl. should have been referred to the same species is not surprising, but that this plant should also have been included is incomprehensible. I had already decided to raise it to generic rank before examining Welwitsch's specimens in the British Museum, and on going there found that Welwitsch himself had come to the same conclusion. Accompanying the excellent specimens is a full description and an analysis of the flower, together with the name given above. The absence of horizontal scales, forming a sort of diaphragm in the calyx tube in *Cacoucia*, and the adherent geniculate style are the reasons for separating it from the genus named.—W. Botting Hemsley.

Fig. 1, a flower laid open and the ovary in vertical section: 2, a petal: 3, stamens: 4, a young fruit. *All enlarged*, except 4.

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HOOKER'S

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Plate 2551.

LOESELIA CORDIFOLIA, *Hemsl. et Rose.*

Polemoniaceæ.

L. cordifolia, *Hemsl. et Rose* (*sp. nov.*); species elata, ramis lateralibus insigniter divaricatis, foliis caulinis omnibus sessilibus amplexicaulibus.

Herba erecta, paucipedalis, cito glabrescens, caulibus ramulisque gracilibus primum leviter puberulis deinde nitidis brunneis, internodiis quam foliis longioribus. *Folia* caulina opposita, sessilia, rigida, glabra, cordata, 1–2½ poll. longa, acuta, setoso- vel fere aculeato-duplicato-dentata, rugulosa, prominenter venosa. *Flores* glabri, 4–5 lin. diametro, in bractearum axillis ad apices ramulorum congesti, bracteas paullo excedentes; bracteæ foliaceæ, rotundato-ovatæ, longe setoso-dentatæ, absque setis 2–4 lin. latæ; bracteolæ minores, oblongæ, supra medium ad marginem paucisetosæ. *Calycis dentes* acutissimi, tubum æquantes. *Corollæ tubus* cylindricus, quam calyx dimidio longior; lobi rotundato-spathulati. *Stamina* breviter exserta. *Ovarium* glabrum, loculis 1-ovulatis. *Capsula* ignota.

Mexico: Tepic, Jalisco, *Palmer*, 1862.

The drawing of this distinct species was made from a specimen belonging to the United States National Herbarium, lent, with others, for the purpose of elucidating the genus. It is nearest to *L. amplectens*, Benth., a partial analysis of the flower of which is given for comparison.—W. Botting Hemsley.

Fig. 1, a bract; 2, a flower-bud; 3, an expanded flower; 4, authers; 5, pistil; 6, vertical section of ovary—of *L. cordifolia*, Hemsl. et Rose.

Fig. 7, an expanded flower; 8, pistil and portion of calyx laid open; 9, vertical section of ovary—of *L. amplectens*, Benth. *All enlarged.*

M S. del. et lith

Plate 2552.

LOESELIA INVOLUCRATA, *G. Don.*

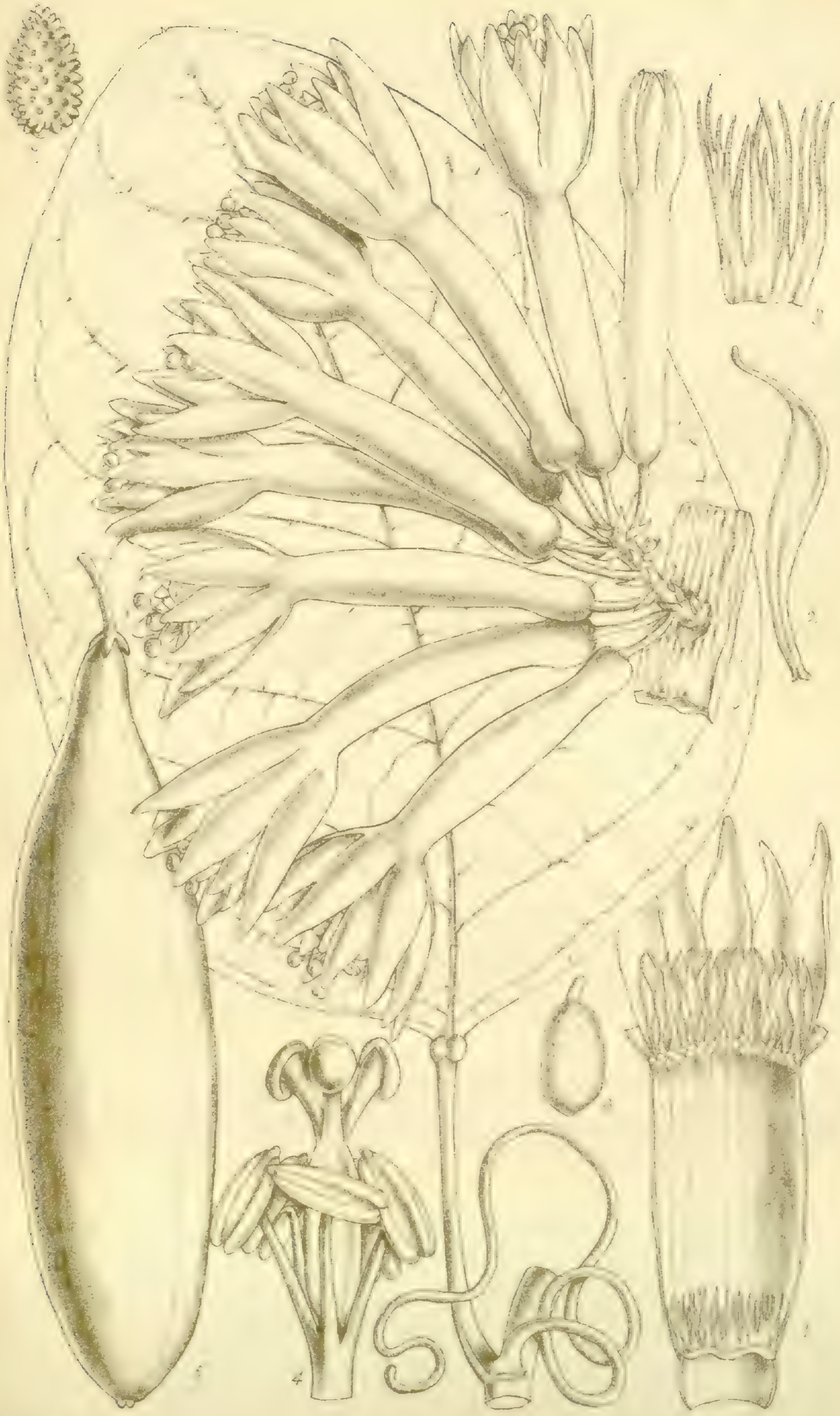
Polemoniaceæ.

L. involucrata, *G. Don, Gen. Syst.* iv. p. 248; ramulis lateralibus floriferis elongatis gracillimis fere nudis, bractearum setis brevibus.

Herba cito glabrescens, erecta, 1-2 ped. alta, ramosa, ramis gracillimis virgatis lignescentibus. *Folia* caulina opposita. vel superiora multo minora bracteiformia alterna, breviter petiolata, tenuia, rigidiuscula, ovata, maxima circiter sesquipollicaria, apiculato-crenulata vel setoso-crenulata, asperula. *Flores* pauci ad apices ramorum lateralium fere capillarium congesti, bracteis foliaceis rigidis in margine setaceis arcte suffulti. *Calyx* setulosus, dentibus acuminatissimis. *Corollæ tubus* brevis, lobis spathulatis. *Capsula* glabra, lævis; semina oblonga, compressa, brevissime alata.

Mexico: Tequila, Jalisco, *Palmer*, 370; Colima, *Palmer*, 1175.

Loeselia involucrata, G. Don, and *L. ciliata*, Linn., were confused by Bentham (*DC. Prodr.* ix. p. 319, 1845), and the confusion has been continued by most, if not all, botanists ever since. Indeed, it has been supposed that they were one and the same species, but Mr. J. N. Rose, Assistant Curator of the United States National Herbarium at Washington, having specimens of several species (including the new one represented on Plate 2551) under observation, suspected the truth, and arrived at a correct conclusion. The writer has since compared Mr. Rose's specimens with the types of the two species in the British Museum and with the type of *Hoitzia lupulina*, Hook. et Arn., in the Kew Herbarium, and verified Mr. Rose's view that the following synonymy, a part of which has been ascribed to *L. involucrata*, all belongs to *L. ciliata*, Linn. *Gilia ciliata*, Benth. Pl. Hartw. p. 325; *Hoitzia lupulina*, Hook. et Arn. Bot. Beech. Voy. p. 441; *Loeselia aristata*, G. Don, Gen. Syst. iv. p. 248; *Hoitzia aristata*, H.B.K. Nov. Gen. et Sp. iii. p. 167; and nearly all the specimens that have been referred to *involucrata* belong to *ciliata*. The former is apparently comparatively rare, whereas the latter ranges from North Mexico to Panama, and includes the specimens under the following numbers in the Kew Herbarium:—Cerro de Pinal,



M. S. del. et lith.

PASSIFLORA FUCHSIIFLORA, *Hemsl.*

PASSIFLORACEÆ.

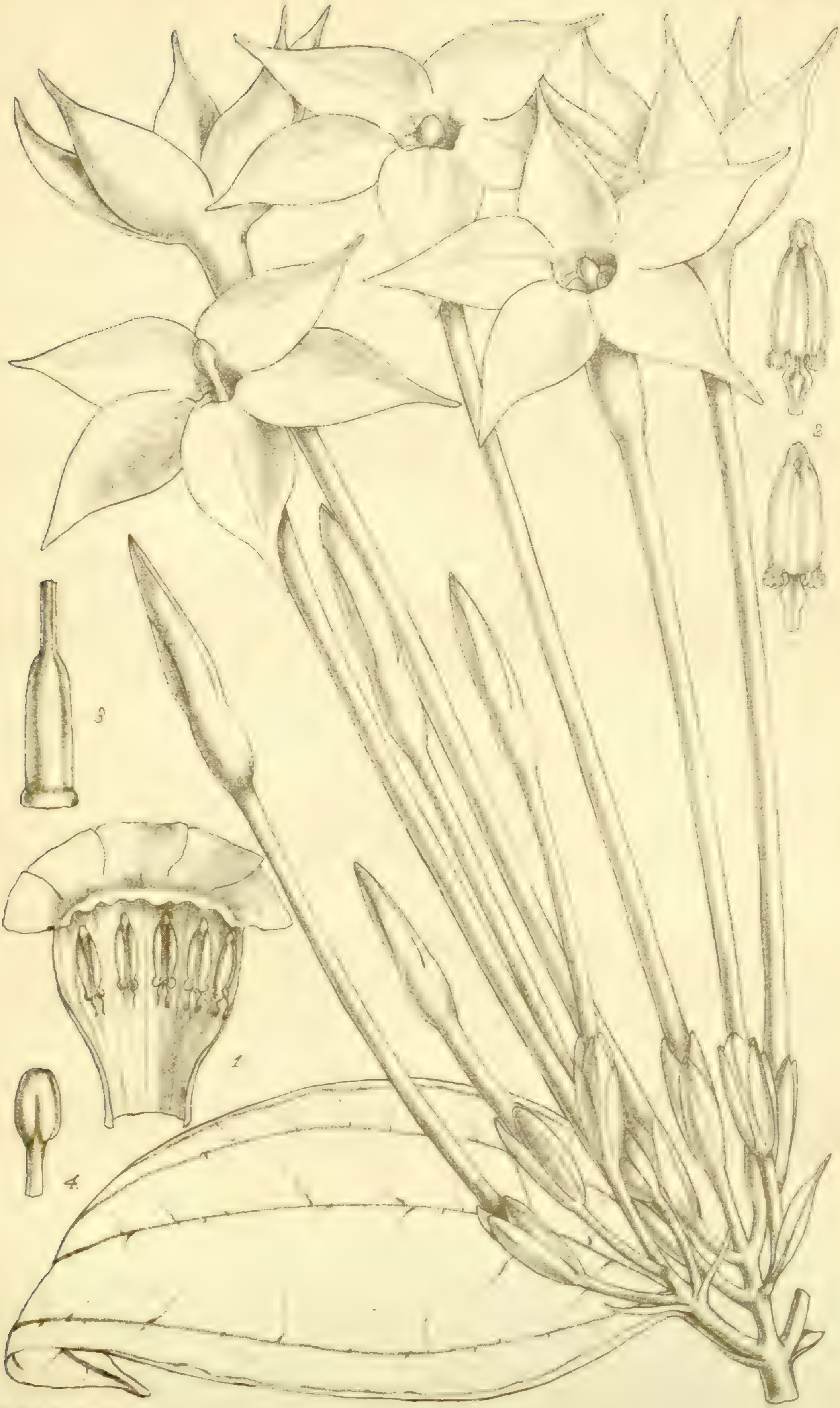
P. fuchsiiflora, *Hemsl.* (*sp. nov.*) ; species ex affinitate *P. spicatæ*, a qua differt floribus ad ramos annotinos vel vetustiores fasciculatis, sepalis petalisque suberectis.

Frutex alte scandens, undique glaber, ramulis ultimis teretibus. *Cirrhi* axillares vel supra-axillares, simplices. *Folia* longe petiolata, vix coriacea, ovato-rotundata vel cordiformia, absque petiolo usque ad 6 poll. longa lataque, integerrima, supra nitida, subtus glauca, rubescentia, venis primariis utrinque circiter 5 arcuatis et prope marginem connexis ; petiolus teres, usque ad 3 poll. longus, apice biglandulosus. *Flores* aurantiaci, odorati, ad ramos usque ad 2 poll. diametro fasciculati 10–30 aggregati (*Jenman*), pedicellis gracilibus 3–5 lin. longis. *Calycis tubus* cylindricus, leviter ventricosus ; lobi lanceolati, circiter 9 lin. longi, petala paullo longiores. *Petala* anguste lanceolata, acuta, tenuiora. *Corona faucialis* pluriseriata, segmentis numerosissimis anguste ligulatis acutissimis quam petalis dimidio brevioribus. *Corona interior* fere basilaris, uniseriata, segmentis irregulariter fimbriatis. *Capsula* cylindrico-clavata ; semina numerosissima, oblongo-ovoidea, scrobiculata, arillo tenui omnino involuta.

BRITISH GUIANA : Demerara river, *Jenman*, 6540.

Mr. Jenman describes this as an exceedingly ornamental species ; its orange-coloured, sweet-scented flowers being produced in great profusion. It resembles *Dilkea Wallisii*, Mast. (*Mart. Fl. Bras.* xiii. i. t. 106), both in foliage and flowers, and also in the latter being borne on the old wood. The resemblance of the flowers to those of some species of *Fuchsia* having included genitalia, such as *F. dependens*, Hook., for example, is very striking.—W. BOTTING HEMSLEY.

Fig. 1, portion of flower laid open ; 2, a filament of the upper corona ; 3, a portion of the lower corona ; 4, upper portion of andrœcium and gynæceum ; 5, a fruit with the remains of the andrœcium at the base ; 6, a seed enveloped in the aril ; 7, a seed from which the aril has been removed. *All enlarged except* 5, *which is natural size.*



M. S del. et lith.

Plate 2554.

TACHIADENUS ELATUS, *Hemsl.*

GENTIANACEÆ.

T. elatus, *Hemsl.*(*sp. nov.*) ; inter species affines magnitudine foliorum et longitudine florum insignis.

Frutex 4–5 ped. altus (*Gerrard*), undique glaber, caulibus vel ramis rectissimis teretibus, internodiis quam foliis brevioribus. *Folia* petiolata, subcoriacea, ovato-lanceolata, cum petiolo circiter unciali 4–6 poll. longa, acute acuminata, basi subrotundata, distincte trinervia. *Flores* ad apices ramorum dense cymosi, erecti, breviter pedicellati, cymis 3–12-floris. *Sepala* fere libera, arcte imbricata, coriacea, persistentia, margine tenuiora, lanceolata, acuta, vix carinata, 7–9 lin. longa. *Corolla* hypocrateriformis, 5–7 poll. longa, tubo apicem versus gradatim ampliato ; lobi ovati, acuti, patentes. *Stamina* prope faucem affixa, inclusa, filamentis brevissimis. *Stylus* brevissime exsertus. *Capsula* oblongo ovoidea, 12–15 lin. longa, basi subito angustata sed vix stipitata, apice stylo indurato coronata ; semina numerosissima, minuta, globosa, conspicue foveolata.

MADAGASCAR : without locality, *Gerrard* ; *Humblot*, 7 ; *Baron*, 6682 ; *Curtis*.

This is one of a number of Madagascar plants remarkable for the length of the tube of the corolla. *Ixora siphonantha*, Oliv. (plate 2236 of this work), is another example ; and *Angraecum sesquipedale*, Thouars (*Bot. Mag.* t. 5113), exhibits a similar phenomenon in the prodigious length of its spur.—W. BOTTING HEMSLEY.

Fig. 1, upper part of corolla-tube laid open to show attachment of stamens ; 2, anthers ; 3, ovary ; 4, stigma. *All enlarged.*

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Plate 2555.

RHIGIOPHYLLUM SQUARROSUM, *Hochst.*

Campanulaceæ.

R. squarrosum, *Hochst. in Flora*, xxv. p. 232 (*sp. unica*).

Fruticulus a basi ramosus, erectus, 1–2 ped. altus, undique glaber, ramis rectis rigidis. *Folia* crassa, coriacea, arcte quadrifariam imbricata, sessilia, decurrentia, subrotundata, maxima 4 lin. lata, brevissime apiculata, margine incrassata, costa infra elevata. *Flores* atro-cœrulei (*Bolus*), ad apices ramorum congesti, sessiles vel subsessiles. *Calycis lobi* lanceolato-oblongi, acuti, 2–2½ lin. longi. *Corollæ* hypocrateriformis tubus gracillimus, circiter pollicaris, limbi lobis oblongo-lanceolatis vix acutis. *Stamina* inclusa, juxta faucem affixa, filamentis brevissimis. *Ovarium* 3-loculare, loculis pluriovulatis, ovulis pendulis; stylus breviter exsertus.

South Africa: mountains between Caledon and Elim, from 700 to 1,000 feet, *Bolus*, 8525.

So far as we can ascertain, this singular campanulaceous plant had not been collected since Krauss first discovered it, about the year 1840, until Mr. Harry Bolus re-discovered it, in the same district, in 1896. Mr. Bolus's specimens are apparently the only ones in this country.—W. Botting Hemsley.

Fig. 1, a flower: 2, vertical section of ovary, with style and part of calyx-limb; 3, corolla laid open, showing attachment of stamens; 4, stamens. *All enlarged.*

M.S del. et lith.

Plate 2556.

ACIPHYLLA LYALLII, *Hook. f.*

Umbelliferæ.

A. Lyallii, *Hook. f. Handb. N. Zeal. Fl.* p. 92, pro maxima parte ; species foliis radicalibus pinnatis nunquam trifoliolatis.

Herba perennis, omnino glabra, caulibus subsimplicibus 1–2 ped. altis. *Folia* rigidissima, radicalia longe petiolata, pinnata, foliolis 5–9 linearibus aculeato-acuminatis ; stipulæ fere aciculatæ, longe adnatæ. *Flores* dioici vel polygami, in umbellas pauciradiatas dispositi. *Carpella* vix alata, valleculis 1–2-vittatis, commissura 2-vittata.

A figure of this plant has been given here, partly because leaves of *A. Hectori*, Buchan. (*Trans. New Zeal. Inst.* xiv. p. 346, t. xxvii.), were mixed with the original specimens and included in the description, and partly because there were no good figures of the fruit of any species of the genus. Mr. Thos. Kirk, Government Biologist, Wellington, New Zealand, suspected some confusion, and we are now able to clear it up at Kew.—W. Botting Hemsley.

Fig. 1. receptacle of male flower ; 2, a ripe fruit ; 3, 4, 5, 6, transverse sections of carpels. *All enlarged.*

Plate 2557.

POUPARTIA FORDII, *Hemsl.*

Anacardiaceæ.

P. Fordii, *Hemsl.* (*sp. nov.*); species unica Asiæ incola hactenus cognita.

Arbor dioica (vel polygama) 20–40 ped. alta, foliis deciduis (*Ford*), ramulis floriferis crassiusculis glabris. *Folia* imparipinnata, fere omnino glabra, distincte graciliterque petiolata; foliola 9–13, opposita, graciliter petiolulata, tenuia, fere membranacea, oblique lanceolata, 2–4 poll. longa, longe acuminata, integra, subtus glauca. *Flores* pseudohermaphroditi atque masculini, cymoso-paniculati, paniculis angustis quam foliis multo brevioribus. *Flores* feminei in axillis foliorum superiorum solitarii, brevissime pedunculati. *Stamina* 10. *Ovarium* 5-loculare, ovulis solitariis pendulis; styli laterales, stigmatibus peltatis. *Fructus* edulis, drupaceus, ovoideus, circiter 1 poll. longus.—*Rhus sp.?* Hemsl. in Journ. Linn. Soc. xxiii. p. 148.

Hongkong: *Wright*, 107, 473; woods in Happy Valley, *Ford*, 612.

Imperfect specimens of this tree, collected on the United States Pacific Exploring Expedition, have lain in herbaria for nearly fifty years, and Mr. Ch. Ford, the Superintendent of the Hongkong Botanic Garden, sent good specimens of the male to Kew in 1881. He has since sent copious material from which the accompanying plate was prepared. From Mr. Ford's notes we learn that about 100 trees exist; and in a later communication he mentions that only about five per cent. of them are female. We have followed Engler (*DC. Monogr. Phaner.* iv.) in retaining the genus *Poupartia*, previously only known from Bourbon and Mauritius, and referred to *Spondias*. The floral structure of the Hongkong plant is exactly the same as that represented by him (*loc. cit.* t. 7); but it is difficult to decide which is the best course when dealing with a single species.—W. Botting Hemsley.

Fig. 1, a branch bearing pseudo-hermaphrodite flowers; 2, portion of the under-side of a leaf, showing tufted hairs in the axils of the veins; 3, a pseudo-hermaphrodite flower; 4, a petal from the same; 5, genitalia; 6, a portion of a male inflorescence; 7, a male flower; 8, the same laid open; 9, a branch bearing solitary axillary female flowers; 10, a female flower; 11, barren stamens from female flower; 12, vertical section of ovary; 13, cross section of ovary; 14, a branch bearing fruit; 15, a fruit from which the epicarp has been removed; 16, a seed; 17, embryo. *All, except* 1, 6, 9, 14, 15 *and* 16, *more or less enlarged.*

Bolus del.

Plate 2558.

STAAVIA DODII, *Bolus.*

Bruniaceæ.

S. Dodii, *Bolus (sp. nov.)*; *S. glutinosæ* similis, at foliis et bracteis involucri oblongis retusis planis brevioribus facile recognoscenda.

Fruticulus 1½-2½ ped. altus, erectus, ramosus, ramis villosis dense foliosis. *Folia* sparsa, conferta, patentia, oblonga, obtusissima, retusa, apice callosa, glabra, plana, basin versus ciliata, minute albo-punctulata, 3-4 lin. longa. *Capitula* solitaria, discoidea, 1-1½ poll. diam. *Bracteæ* discum involucrantes, numerosæ, patenti-radiantes, oblongæ, obtusæ, glabræ, albæ, callo deciduo mucronatæ, ad 9 lin. longæ, floribus multoties longiores. *Bracteolæ* 2-4, floribus breviores, exteriores spathulatæ, interiores lineares. *Flores* congesti, succo resinoso agglutinati. *Calycis lobi* erecti, subulati, acuminati, callosi, longe ciliati, atropurpurei, petalis fere æquilongi, tubo 4-5-plo longiores. *Petala* patentia, anguste elliptica, acuta, purpurea, basi valde incrassata, dorso apicem versus barbata. *Stamina* petalis breviora. *Fructus* sæpe abortu 1-spermus.

South Africa: On a rocky ridge near Smit'swinkel Bay, on the Cape Peninsula, at 700 feet, *Capt. Wolley-Dod*, 2641.

Described and drawn from living specimens kindly communicated by the collector, who has made many valuable additions to our knowledge of the flora of the Cape Peninsula. The plant is a striking one, curiously resembling a Composite (*e.g. Osmites*). It was found growing somewhat plentifully within a small area, and it is remarkable that being so near to Cape Town it should have escaped the notice of so many earlier collectors.* - H. Bolus.

Fig. 1, leaves, from one of which the deciduous apiculus is absent; 2, bracts of the involucre: 3, a flower and three bracteoles; 4, hairs from the receptacle; 5, vertical section of a flower; 6, portion of the calyx-limb; 7, views of the outer and inner surfaces of a petal—note the nectary at the base on the inside; 8, stamens; 9, a ripe fruit; 10, the same from which the calyx has been removed. *All enlarged.*

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* Kew previously possessed specimens of this plant, without locality, communicated by Admiral Sir F. Gray, in 1860; and also one from the late Dr. Lindley, without either locality or collector's name.—W. Botting Hemsley.

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M.S. del. et lith.

M. S. del. et lith.

Plates 2559 and 2560.

LAPORTEA LONGIFOLIA, *Hemsl.*

URTICACEÆ. Tribe URTICEÆ.

L. longifolia, *Hemsl.* (*sp. nov.*) ; subarborescens, foliis angustis longissimis pendulis.

Arbor parva (?), inermis, primum simplicicaulis, deinde pauciramosa (exemplum in horto kewensi cultum fere 5 ped. altum). *Truncus* basi $2\frac{1}{2}$ poll. crassus, foliorum cicatricibus confertis magnis ornatus, apice tantum foliosus. *Folia* conferta, comam formantia, herbacea, longe petiolata, lineari-lanceolata vel lineari-oblonga, arcuato-pendula, cum petiolo $\frac{1}{2}$–3 ped. longa, 1–3 poll. lata, acuta, basi cuneata, plus minusve conduplicata, valde undulata, interdum obscure irregulariterque lobata, primum glandulis globosis sessilibus perlucidis evanidis atque pilis paucis minutissimis leviter urentibus prædita, demum glabrescentia atque nitida ; costa crassissima, carnosa, subtus elevata, rubens, venis lateralibus primariis numerosissimis divaricatis prope marginem conjunctis subtus conspicuis rubentibus ; petioli carnosi, fere teretes, 1–6 poll. longi, maximus circiter 6 lin. diametro ; stipulæ intrapetiolares, connatæ, complicatæ, lanceolatæ, acutæ, 3–4 poll. longæ, diu persistentes. *Flores masculini* cymoso-paniculati, sessiles ; paniculæ puberulæ, axillares, geminatæ, subternato-ramosæ, distincte pedunculatæ, divaricatæ, fere horizontales, 3–6 poll. longæ. *Perianthium* puberulum, sæpissime tetramerum, segmentis ovalibus concavis. *Stamina* perianthium excedentia, ovario rudimento magno subgloboso carnoso. *Flores feminei* ignoti.

NEW GUINEA: Introduced into cultivation by Messrs. J. Veitch and Sons, by whom the plant, here figured and described, was presented to Kew.

This species is only known to us from the cultivated plant described above. It is sufficiently characterised by the long, narrow leaves with very numerous and conspicuous lateral veins.—W. BOTTING HEMSLEY.

Fig. 1, portion of the under side of a leaf, showing superficial glands and hairs ; 2, a partially expanded male flower ; 3, the same fully expanded ; 4, anthers. *All enlarged.*

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M S del et lith

Plate 2561.

PITTOSPORUM SPATHACEUM, *Burkill.*

Pittosporeæ.

P. spathaceum, *Burkill* (*sp. nov.*); species *P. undulato*, Vent. sepalis connatis aliquatenus similis.

Arbuscula (?), ramis gracilibus cortice pallidis levibus. *Folia* alterna, ad apices ramorum conferta, obovata, integra, glabra, $2\frac{1}{2}$–3 poll. longa, 1-1$\frac{1}{4}$ poll. lata, apice rotundata vel obtusa, basi in petiolos breves contracta; petioli 1 5 lin. longi. *Panicula* paucillora, foliis dimidio brevior; pedicelli 5 6 lin. longi. *Calyx* spathaceus, breviter appendiculatus, per anthesin e parte superiori ad basin uno latere fissus, multinervis, 5 lin. longus. *Petala* linearia, acuta, longitudinaliter striata, leviter imbricata, in mediis coalita, 6 lin. longa, vix 1 lin. lata. *Stamina* 4 lin. longa; antheræ breves, versatiles. *Ovarium* 2-carpellare, basi dimidiatum, apice in stylum contractum, stigmate quadrilobato; placentis contactis.

Tonga Islands: Vavau, *Crosby*, 200.

This species is an extreme form, connected with the rest of the genus through the Australian *P. undulatum*. The completely spathaceous calyx, narrower petals, and the obovate blunt leaves distinguish it readily. The colour of the petals appears to have been mauve or purple; but as no notes accompany the dried specimen it is not possible to speak with certainty.—I. H. Burkill.

Fig. 1, a flower; 2, stamens; 3, pistil; 4, cross section of ovary. *All enlarged.*

M. T. del. et lith.

PLATE 2562.

MICROULA TIBETICA, *Maxim.*

BORAGINACEÆ.

M. tibetica, *Maxim. Mél. Biol.* x. p. 682 (1877); inter species cognitas hujus generis unica quod acaulescens vel subacaulescens est.

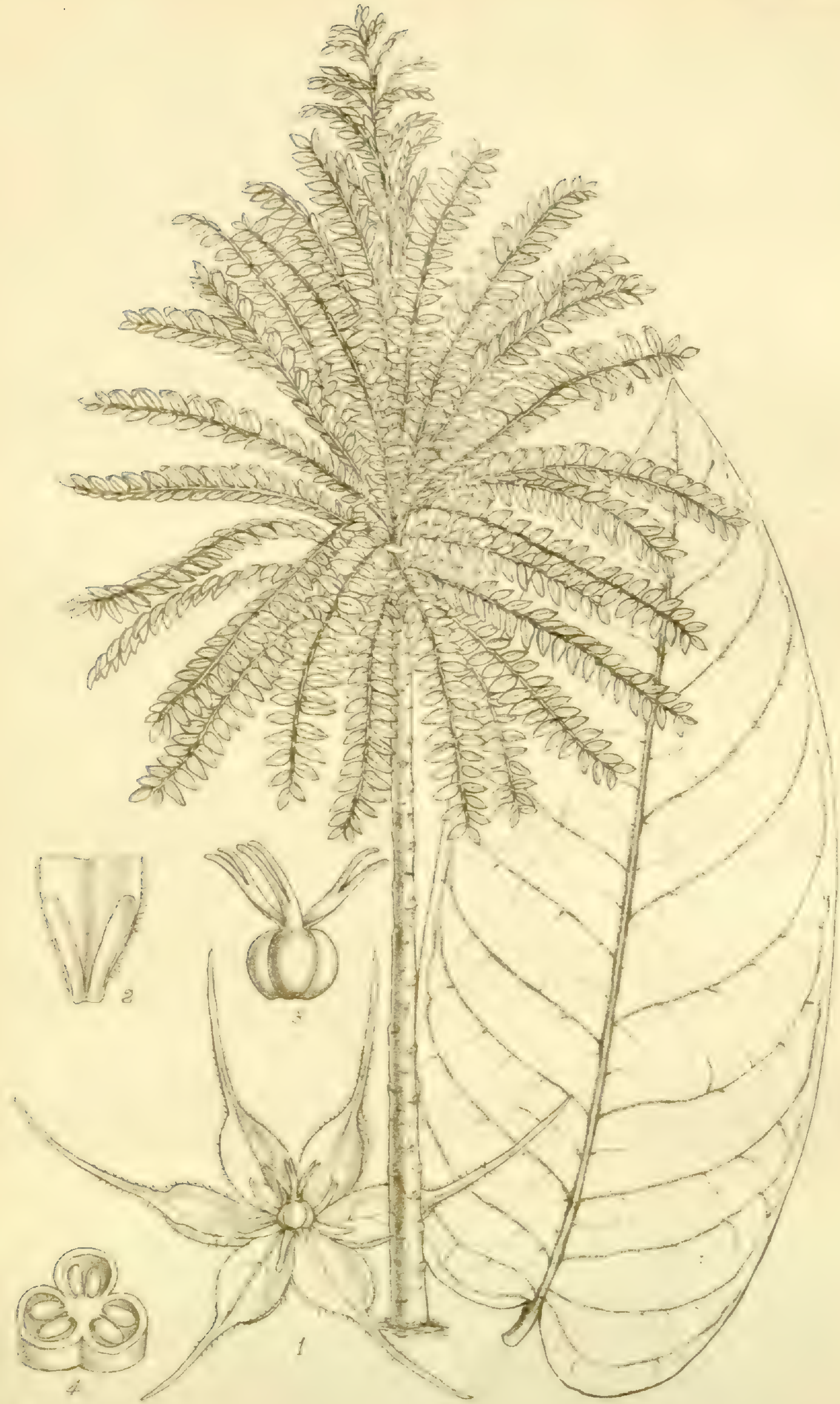
Herba perennis, hispida, subacaulescens, inflorescentiæ ramulis brevissimis ac pedicellis sæpe compressis. *Folia* subrosulata, crassiuscula, oblongo-spathulata, vel superiora (bracteæ?) fere linearia, 1–3 poll. longa. *Flores* albi vel cærulei, densissime cymosi, 2-3 lin. diametro. *Calycis lobi* ovati, subobtusi. *Corollæ tubus* brevissimus; lobi rotundati, undulati, glabri. *Faucis squamæ* 5, minutæ, rotundatæ. *Stamina* infra squamas inclusa. *Stylus* inclusus. *Nuculæ* variæ, plus minusve tuberculatæ ac setulosæ, nunc medio dorso fovea parva immarginata ornatæ, nunc planæ.—*Microula Benthami*, C. B. Clarke, in Hook. f. Fl. Brit. Ind. iv. p. 167 (1883); Hook. Ic. Pl. t. 2257; *Tretocarya pratensis*, Maxim. Mél. Biol. xi. p. 272.

TIBET: various localities, chiefly in the western part, from 15,000 to 18,500 feet, *Thompson*, *Strachey & Winterbottom*, *Thorold*, *Deasy & Pike*, *Wellby & Malcolm*, *Przewalski*.

A second figure of this singular plant has been given, because further material has proved, as Professor D. Oliver suspected (see the letterpress to plate 2207), that the original *Microula* and the original *Tretocarya* are the same plant. Among the specimens collected by Mr. Arnold Pike, Captain Deasy's Expedition, are some which bear nutlets exhibiting the characteristics of the two supposed genera. *Tretocarya* therefore must be reduced to *Microula*, and *T. sikkimensis*, Oliv. (plate 2255 of this work) becomes *M. sikkimensis*, Hemsl. There is a third species, *M. tanguticа*, Maxim., a native of alpine regions in Kansuh, North-western China. The question arises, however, whether the genus as thus constituted is tenable or whether it should not be reduced to *Anchusa*.—W. BOTTING HEMSLEY.

Fig. 1, a bracteole; 2, unicellular hair from the same; 3, a flower; 4, pistil and portion of calyx; 5, corolla, laid open; 6, pistil, advanced stage; 7 and 8, ripe fruits from the same plant (*Deasy & Pike*, 848); 9, a ripe fruit from another plant (*Wellby & Malcolm*). *All enlarged.*

M S. del et lith.



M S del. et lith

Plates 2563 and 2564.

PHYLLANTHODENDRON MIRABILIS, *Hemsl.*

Euphorbiaceæ.

Phyllanthodendron, *Hemsl.* (*gen. nov.*). *Sepala* utriusque sexus 5, e basi ovata vel orbicularia, concava, caudato-acuminata, glandulis linearibus vel ligulatis alternantia. *Stamina* 3, centralia, connectivis supra antheras productis subulatis. *Ovarium* 3-loculare, stylis distinctis divaricatis alte bifidis. *Fructus* ignotus.

P. mirabilis, *Hemsl.* (*sp. unica*). *Arbor* elegans, 30–40-pedalis, trunco simplici, ramis lateralibus confertis foliis pinnatis simillimis modo foliorum ex ordine deciduis. *Rami* primum puberuli, biformes, id est steriles et floriferi ; steriles numerosiores, robustiores, semper simplices, 3–5 ped. longi, plus minusve arcuati et penduli, foliis majoribus ; floriferi graciliores, simplices vel ramulosi, supra axillas ramorum sterilium superiorum enati, suberecti, foliis minoribus, parte inferiore interdum aphylla. *Folia* varia, brevissime petiolata, demum subcoriacea, lanceolata, oblonga, ovata vel interdum fere orbicularia, 1–5 poll. longa, acuta vel obtusa, basi cuneata, rotundata vel cordata, æquilatera vel inæquilatera, supra primum puberula, cito glabrescentia, subtus glauca ; stipulæ e basi latiuscula subulatæ, cito arcte reflexæ. *Flores* in axillis foliorum vel bractearum fasciculati, sessiles, masculini præcipue in parte inferiore rami, feminei in parte superiore positi ; masculini circiter 3 lin., feminei 6 lin. diametro.—*Phyllanthus mirabilis*, Muell. Arg. in DC. Prodr. xv. 2. p. 355.

Siam : the garden of the temple of Wat Cheng, Bangkok, *Rob. Schomburgk.*

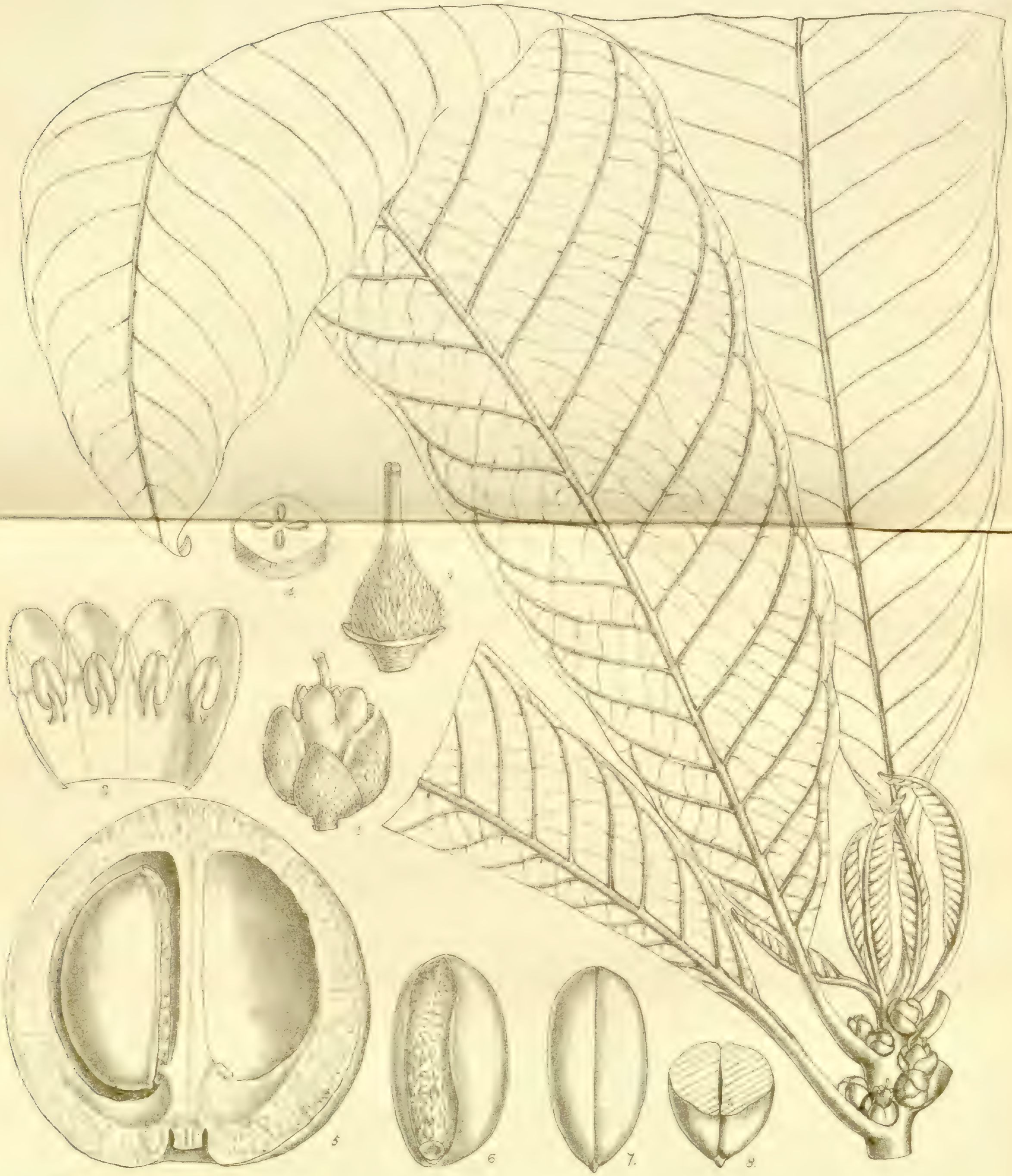
When arranging some of the manuscripts in the Kew library some sketches and a description of this remarkable tree by Sir R. Schomburgk were found, and a short search resulted in the discovery of some dried specimens of it, received at Kew in 1863. In his account of this tree, Sir R. Schomburgk states that he was informed that it inhabited the summit of Kow Nagh, a mountain or hill about ten or twelve days' journey up the Menam river. The deciduous branches misled him, and he arrived at the conclusion that they were pinnate leaves, bearing flowers in the axils of the leaflets. He also, by some

mischance, mixed some pinnate leaves with them, and was led to believe that he had made a very remarkable discovery. Mueller mentions this plant as being singular in the genus *Phyllanthus* in its floral characters, particularly in having a disk of petaloid glands. Generic rank has been given it here, because I believe that *Phyllanthus*, as extended in De Candolle's *Prodromus*, is an unmanageable conglomeration of species. Sir Joseph Hooker and other botanists have already restored *Glochidion*.—W. Botting Hemsley.

Plate 2563: Sterile and fertile branches and detached leaf. *Natural size.* Fig. 1, a male flower; 2, segments of the disk; 3, androecium. *All enlarged.*

Plate 2564: Sketch showing habit, and a leaf. *Natural size.* Fig. 1, a female flower; 2, lower portion of one of the inner segments of the perianth with two of the ligulate segments of the disk; 3, pistil; 4, cross section of ovary. *All enlarged.*

Pl 2565



M S del et lith.

PLATE 2565.

LUCUMA HARTII, *Hemsl.*

SAPOTACEÆ.

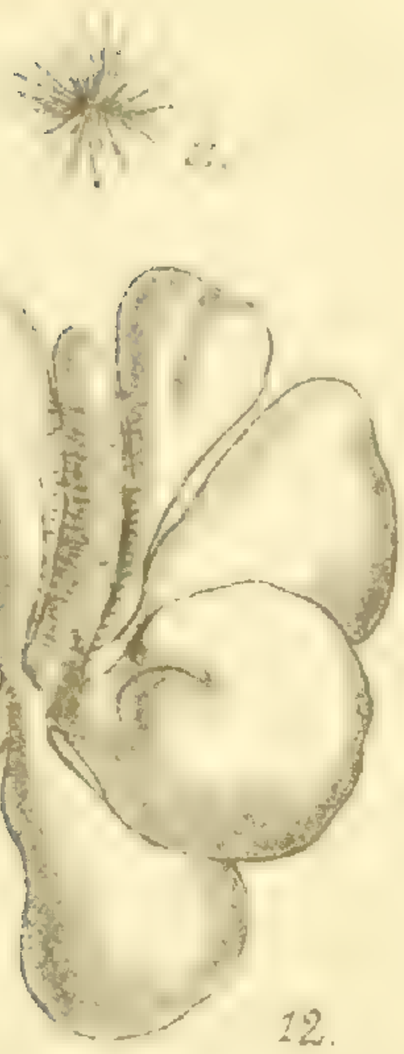
L. Hartii, *Hemsl.* (*sp. nov.*); a *L. multiflora* (supra, t. 2498) foliis majoribus, floribus tetrameris sessilibus, fructu majore recedit.

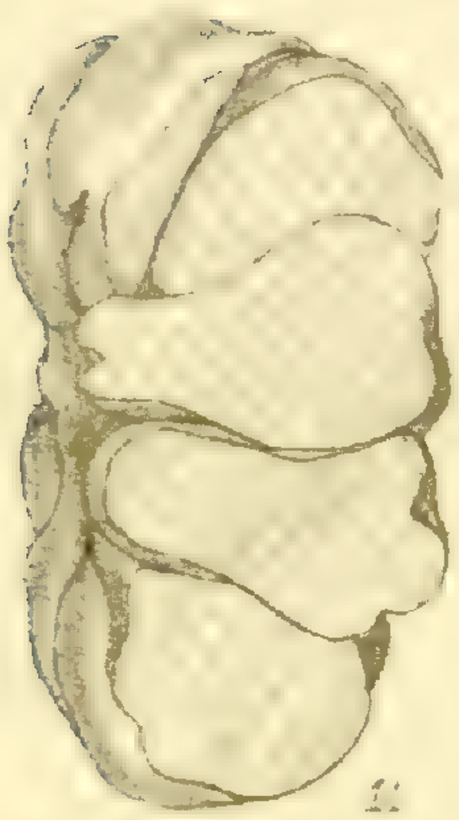
Arbor ramis floriferis crassissimis primum ferrugineo-puberulis. *Folia* ampla, ad apices ramorum conferta, longe petiolata, coriacea, lanceolata vel oblanceolata, cum petiolo 6-12 poll. longa, acuminata, basi cuneata, supra glabra vel cito glabrescentia, subtus, præcipue secus costam et venas primarias numerosas, ferrugineo-puberula. *Flores* (bene evoluti non visi) pauci, in axillis foliorum superiorum sessiles, tetrameri, circiter 4 lin. diametro. *Sepala* fere orbicularia, 2 omnino interiora, 2 exteriora. *Corollæ lobi* rotundati, ciliolati. *Stamina* petalis opposita, staminodiis triangulari-ligulatis alternantia, inclusa. *Ovarium* hirsutum, 4-loculare, stylo glabro breviter exserto. *Fructus* globosus, aurantiacus, edulis, 2-3 poll. diametro, interdum abortu 1-spermus; semina oblongo-cylindrica, hilo angusto, cotyledonibus æqualibus.

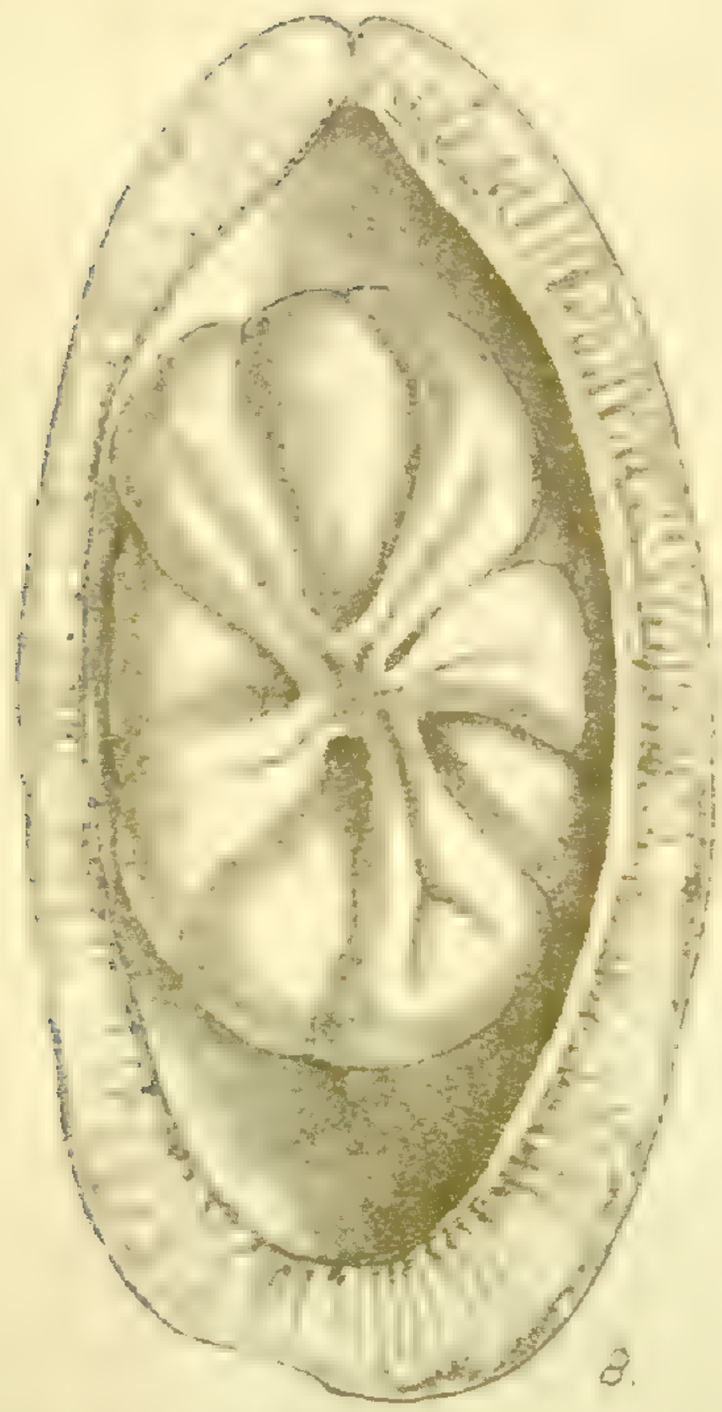
TRINIDAD: Maraval, *Hart*, 4324.

According to Mr. J. H. Hart, to whom Kew is indebted for specimens, this tree bears the name of '*contrevent*' in Trinidad. From imperfect material received in 1890, it was at first supposed to be *L. multiflora*, A.DC., but it proves to be very distinct, and apparently previously undescribed.—W. BOTTING HEMSLEY.

Fig. 1, a flower; 2, corolla laid open showing the stamens and staminodia; 3, pistil; 4, cross section of an ovary; 5, a fruit in vertical section showing two seeds; 6, a seed; 7, embryo; 8, cross section of the same. *Figures* 1-4 *enlarged*; 5-8 *natural size*.







Plates 2566 and 2567.

PACHYLOBUS EDULIS, *G. Don.*

Burseraceæ.

P. edulis, *G. Don, Gen. Syst.* ii. p. 89 ; foliolis 11–17, fructu oblongo vel anguste ovoideo 2–3 poll. longo.

Arbor 30–70-pedalis ramis floriferis atque floribus ferrugineo-pubescentibus. *Folia* imparipinnata, 1–2 ped. longa, glabrescentia ; foliola coriacea, breviter petiolulata, valde variabilia, ovata, oblonga vel lanceolata, 2 infima basilaria sæpe (an semper ?) multo minora, stipulæformia, omnia abrupte acuminata, maxima usque ad 6 poll. longa, venis primariis conspicuis prope marginem inter se arcuatim conjunctis. *Flores* diclini vel polygami, subtrimeri, anguste paniculati ; paniculæ axillares, foliis breviores. *Stamina* 6, extra discum inserta. *Ovarium* 2-loculare, loculis biovulatis. *Fructus* edulis, drupaceus, abortu monospermus, oblongo-ovoideus, 2–3 poll. longus, mesocarpio crasso carnoso, endocarpio tenui. *Semen*, ut videtur, fere erectum, loculo conforme, testa membranacea ; cotyledones sæpissime alte pinnatim 5-lobatæ, lobis crassissimis carnosis multiformibus deorsum attenuatis ; radicula superior, elongata, recta, hirsuta, inter cotyledonum lobos erecta.—*Canarium edule*, Hook. f. in Hook. Niger Flora, p. 285 ; Hiern, Cat. Afr. Pl. Welw. 1, p. 127 ; *Canarium Mubafo*, Ficalho in Bol. Soc. Geogr. Lisboa, ser 2, p. 611, et Pl. Ut. Afr. Portug. p. 115 ; *Canarium Saphu*, Engl. Jahrb. XV. p. 99, cum figg. in textu, et t. 3 ; *Pachylobus Saphu*, Engl. in Engl. & Prantl, Natürl. Pfl. Fam. iii. 4. p. 243.

West Tropical Africa : Island of St. Thomas, *G. Don ;* Old Calabar, *Thomson ;* Cameroons, *Mann ; Preuss ; Buchholz ;* Cazengo, *Welwitsch*, 4482, 4483 ; Wathen Station or Ngombe, thirty-four miles below Stanley Pool, *Bentley*.

Canarium Schweinfurthii, Engl., a genuine *Canarium*, having a thick, exceedingly dense and hard endocarp, has been confused with *Pachylobus edulis*, G. Don. Both trees yield an edible fruit, and bear similar or perhaps in some districts the same names ; and the leaves are sufficiently alike to deceive a superficial observer. The first-named is evidently very widely spread (*Engl. Pfl. Ost. Afr.* B. pp. 199, 312,

412, 475), ranging from near the west coast in Angola eastward to the lakes and northward to Uganda. *Pachylobus edulis* is cultivated from St. Thomas and the Cameroons to the Congo, at least; and it is figured here in consequence of Kew having received from the Rev. W. H. Bentley, of the Congo Baptist Mission, fruits purporting to represent the wild and cultivated varieties of the same tree; in reality the fruits of the two trees under consideration. Numerous specimens from different localities seem to establish the specific identity of *P. Saphu* with *P. edulis*. Indeed, Don's original specimen of the latter is labelled 'safu;' and Don states (*loc. sup. cit.*) that the tree was a native of St. Thomas, and its fruit was sold in the island under that name. By an oversight the radicle of *Pachylobus* is described as the plumule (*Stämmchen*) both in Engler's *Jahrbücher*, as cited above, and in Engler and Prantl's *Natürl. Pfl. Fam.* iii. 4. p. 242.—W. Botting Hemsley.

Plate 2566: Fig. 1, a cluster of male flowers. *Natural size.*

Plate 2567: Fig. 1, a male flower; 2, a hair from the same; 3, androecium of the same; 4, a female or pseudo-hermaphrodite flower; 5, genitalia of the same; 6, vertical section of ovary; 7, a fruit; 8, a fruit from which a part of the pericarp has been removed showing the embryo from which the testa has been removed; 9, the embryo seen from the reverse side; 10, side view of the same; 11, the same in section; 12, embryo from which several of the cotyledonary lobes have been removed, showing the long hairy radicle directed upwards; 13, radicle lying in a groove of one of the cotyledonary lobes; 14, a single lobe; 15, part of radicle and slightly developed plumule of a germinating embryo. *Figures* 1–6 *enlarged*; 7–15 *natural size.*

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Plate 2568.

CARPODINUS DULCIS, *Sabine.*

Apocynaceæ.

C. dulcis, *Sabine in Trans. Hort. Soc* v. p. 455 ; a *C. parviflora*, Stapf, foliis obscure acuminatis vel acutis vel obtusis et cymis plerumque plurifloris differt.

Frutex ope cirrorum longorum terminalium vel pseudo-axillarium scandens ; rami primo tenuiter fulvo-hirsuti, mox glabrescentes, cortice tandem griseo vel brunneo, lenticellis paucis inconspicuis. *Folia* oblonga, 3–4½ poll. longa, 1½–2 poll. lata, basi rotundata, obscure acuminata, obtusa vel rarius acuta, coriacea, primo fulvo-hirsuta, mox glabrata, nervis lateralibus utrinque circiter 7, subtus prominentibus, supra subimpressis ; petiolus 2 2½ lin. longus. *Cymæ* axillares, subsessiles, contractæ, tenuiter fulvo-hirsutæ, pauci- vel 1 florae ; bracteæ plerumque 4 sub unoquoque flore, oblongæ, interiores minores calyci appressæ, fulvo-hirsutæ. *Calycis segmenta* sublibera, ovata, subacuta, ciliolata, 1½ lin. longa. *Corollæ tubus* 3–4 lin. longus, sub fauce dilatatus, subglaber ; laciniæ lanceolatæ, tubum æquantes. *Ovarium* superne fulvo-hirsutum. *Fructus* globosus, apiculatus ; semina circiter 12, 3 lin. longa.

West Tropical Africa : Senegambia, *Heudelot* ; Sierra Leone, Freetown, Martello Tower Hill, *G. Don* ; Bunce Island, in the Lower Sierra Leone River, *Kirk* ; all over the inland country to the headwaters of the Niger, and common on the laterite plateau, *Scott Elliot*, 4249, 4275a, 4294, 5091, 5127.

According to G. Don, the fruit resembles a lime in size and appearance, and is eaten by the natives, who know it by the name of 'sweet' Pishamin, in contradistinction to the 'sour' Pishamin, which is *Carpodinus acida*, a very obscure species, of which there is no authentic specimen in existence.

Carpodinus is distinguished from *Landolphia* in Bentham and Hooker's *Genera Plantarum* by the position of the stamens, which are said to be inserted near the base of the tube in *Landolphia*, and near the mouth of the tube in *Carpodinus* ; by the presence of a horny

albumen in the seeds of *Landolphia*, and the absence of albumen in those of *Carpodinus*, and by the cymes being terminal in *Landolphia*, and axillary in *Carpodinus*. These definitions require correction. The position of the stamens in the species generally admitted as belonging to *Landolphia* varies from almost basal to apical, and the seeds of both genera are albuminous in all the species examined ; the albumen is horny, and the cotyledons very thin and broad, occupying a plane central cavity. The third character, however, divides the species under consideration into two fairly easily recognisable groups, one having only terminal (or pseudo-axillary), and the other having mainly axillary inflorescences. The species belonging to the first group represent what is generally recognised as the genus *Landolphia*, whilst the others correspond to the genus *Carpodinus*. Nor is this division purely artificial ; for the characters afforded by the position of the inflorescence are always associated with certain conditions in the structure of the flowers, although they are not so conspicuous or so well defined. In *Landolphia* the style is generally rather short, in *Carpodinus* always long. As the anthers surround the stigma in both genera, and the filaments are short, this determines the relative position of the stamens in the tube, so that in *Landolphia* the stamens are inserted near the base of the tube, where the corolla tube is long, but more or less towards the mouth of the tube, where the corolla tube is short ; whilst, on the other hand, the insertion is always near the top in *Carpodinus*. A further distinctive character is offered by the inflorescence, those of *Landolphia* being, on the whole, profusely ramified and many-flowered, as compared with the usually very reduced and few to 1-flowered cymes of *Carpodinus*. Similar relations seem to exist with respect to the number of seeds, *Landolphia* producing more numerous seeds in each fruit than *Carpodinus* ; but here the observations are still too few to allow a definite conclusion. With the generic diagnoses of *Landolphia* and *Carpodinus* thus revised it seems to be preferable to transfer *Carpodinus calabaricus*, Stapf, to *Landolphia*, and, indeed, specimens belonging to this species have since been described as *L.? bracteata* by Dewèvre. The inflorescences are always terminal (or pseudo-axillary) in this species ; the style, however, is rather long for *Landolphia*, and the stamens are inserted at the middle of the slender tube.—O. Stapf.

Fig. 1 a flower; 2, calyx-lobes from the inside to show absence of glands; 3, corolla laid open ; 4. stamens; 5, pistil ; 6, cross section of ovary. *All enlarged.*

Plate 2569.

BASSIA THURSTONII, *Hemsl.*

SAPOTACEÆ.

B. Thurstonii, *Hemsl.* (*sp. nov.*); inter species polynesiacas foliis amplis, floribus magnis distincta.

Arbor ramulis floriferis crassissimis. *Folia* ad apices ramulorum conferta, distincte petiolata, valde coriacea, obovato-lanceolata, 5 10 poll. longa, apice rotundata, basi cuneata, supra glabra vel cito glabrescentia, subtus ferrugineo-tomentosa, venis primariis lateralibus utrinque circiter 15-17 subtus elevatis. *Flores* numerosi, fasciculati, atque pedunculi circiter pollicares ferrugineo-tomentosi, quam pedunculi paullo breviores. *Sepala* 4, crassissima, ovato-rotundata. *Corolla* alte 8-lobata, lobis obovato-spathulatis intus infra medium pilosis. *Stamina* circiter 40, filamentis valde pilosis. *Ovarium* glabrum, 4-loculare, stylo breviter exserto. *Fructus* ignotus.

FIJI: without locality, but probably from the island of Suva, *Thurston.*

The late Sir John Bates Thurston sent the specimens, from which this drawing was made, to Kew, in 1895, together with the testa of a seed of a species of *Chelonespermum*, probably *C. unguiculatum*, Hemsl., on the supposition that they were from the same tree. It was at first taken for granted that the seed and flowering branches were of the same species; but further investigation gives rise to great doubt on this point, as the floral structure is quite different from that of *C. majus*, Hemsl., the only species of which the flowers are known with certainty—at least, the only one of which flowering specimens and fruit were received together. Further material, however, is required before the genus can be satisfactorily defined. With regard to the retention of the generic appellation *Bassia* in preference to the more recently adopted *Illipe*, the latter was simply given in the place cited (*Linn. Mant.* ii. *App.* p. 563) as a native name, *i.e.* "Illippe Malabarorum."—W. BOTTING HEMSLEY.

Fig. 1, part of corolla and stamens, one abnormal; 2, hairs from the inside of the corolla and filaments; 3, a petal; 4, anthers; 5, vertical section of ovary; 6, cross section of ovary. *All enlarged.*

M.S.del et lith

Plate 2570.

HEVEA SPRUCEANA, *Muell. Arg.*

Euphorbiaceæ.

H. spruceana, *Muell. Arg. in Linnæa*, xxxiv. p. 204, et in *DC. Prodr.* xv. 2, p. 717 ; inter species foliis glabris inflorescentiæ amplitudine insignis.

Arbor elata, ramis floriferis glabris. *Folia* ad ramorum apices confertissima, glabra, petiolo 4–8 poll. longo apice 2-glanduloso ; foliola distincte petiolulata, tenuia, papyracea vel forsan demum subcoriacea, ovato-lanceolata, $3\frac{1}{2}$–8 poll. longa, acute vel subobtuse acuminata, basi cuneata, discoloria, supra subnitida, costa impressa, subtus pallida, venis primariis utrinque circiter 15 atque costa subtus elevatis. *Panicula* numerosæ, angustæ, usque ad $1\frac{1}{2}$ ped. longæ, erectæ, dense ramosæ, atque flores puberulæ, ramis pedicellisque gracillimis. *Flores* feminei pauci, subterminales, circiter 9 lin. diametro ; masculini minores, numerosissimi. *Perianthii segmenta* anguste lanceolata, acuta. *Stamina* 10, antheris biseriatis, seriebus disjunctis, columna centrali verticillatim affixis ; columna supra antheras producta, subulata, puberula, basi glandulis 5 ovoideis cincta. *Ovarium* pubescens. *Fructus* ignotus.*—*Siphonia spruceana*, Benth. in Hook. Kew Journ. Bot. vi. p. 370.

North Brazil : Santarem, *Spruce*, 999.

This has been figured because two other species, *H. pauciflora*, Muell. Arg., and *H. confusa*, Hemsl., have been confused with it, and one, or both, of these, the only known British Guiana species, are in cultivation, and have been reported on as *Hevea spruceana*. The material under observation is insufficient to define these three species satisfactorily ; but the publication of figures and descriptions of what we have may assist cultivators and collectors by indicating what is required to complete the definitions. In the first place it is impossible to refer the seeds represented on plate 2575 (figures 12–15) to their species with absolute certainty. But as only one of them (*H. confusa*) appears to be cultivated in the West Indies, it is probable that figures

* For analysis of flowers see plate 2573, figures 14–17.

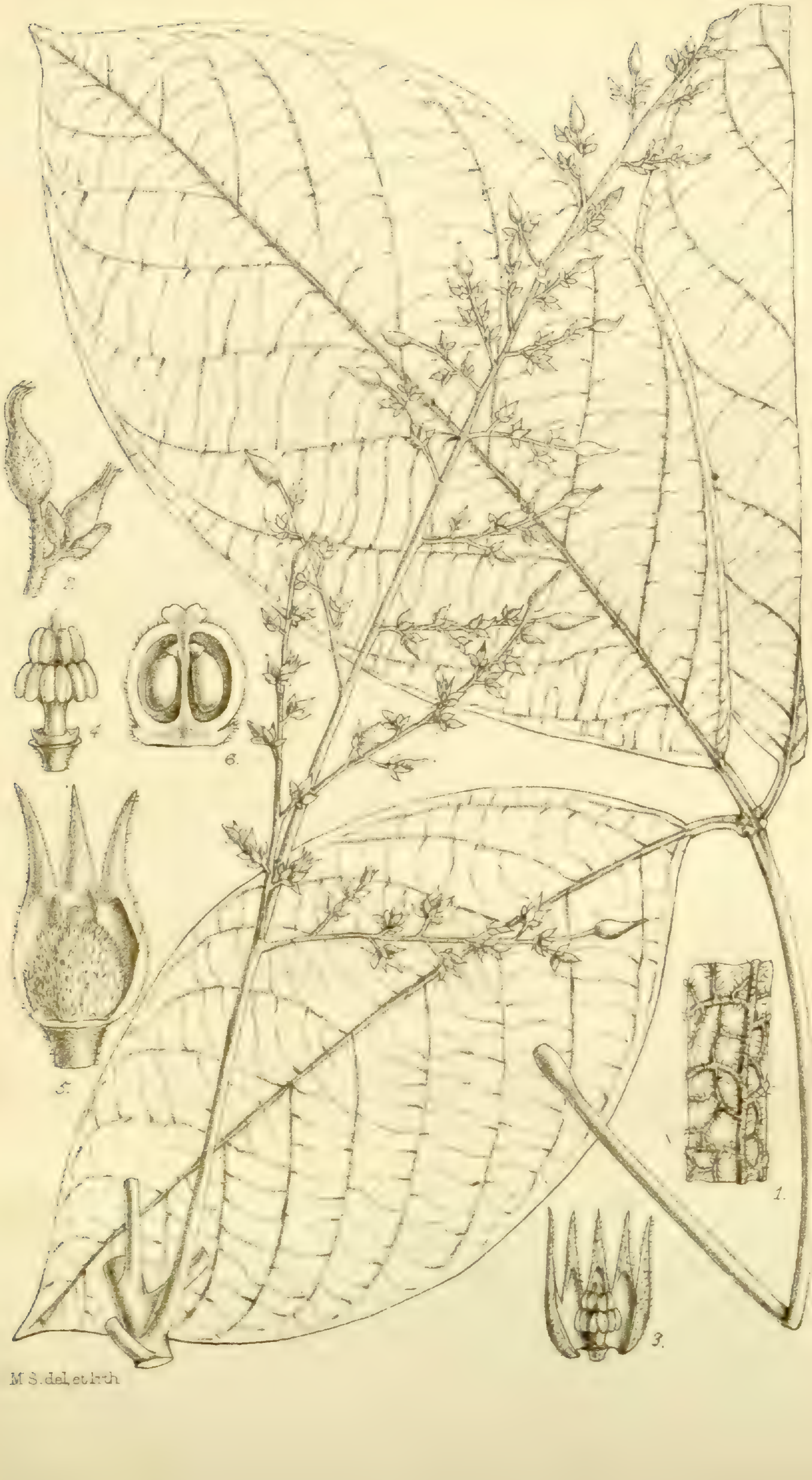
12 and 13 belong to that species, and 14 and 15 to *H. pauciflora*. The leaves sent with the latter point to the correctness of this identification.

H. confusa, *Hemsl.* (*sp. nov.*); species inter affines foliis glabris obovato-lanceolatis vel oblanceolatis crassis coriaceis et floribus parvis albo-tomentosis et ovario glabro distinguitur.

Arbor 60 ped. alta, ramulis floriferis crassis. *Folia* omnino glabra, longe petiolata; foliola sæpissime oblanceolata, in ramis floriferis usque ad 9 poll. longa, sed sæpius minora, abrupte obtuseque acuminata, basi cuneata, supra nitida, costa impressa, subtus pallida, venis primariis lateralibus utrinque circiter 15 atque costa elevatis. *Panicula* angustæ, pauciramosæ, quam folia sæpe longiores, ramulis pedicellisque puberulis *Flores* parvi, feminei majores 3–4 lin. diametro. *Perianthii segmenta* acuta. *Stamina* 10, antheris biseriatis, seriebus approximatis, columna centrali verticillatim affixis; columna supra antheras producta, subulata, glabra, basi glandulis 5 minutis cincta. *Ovarium* glabrum, basi disco tenui lobato, lobis acutis, cinctum. *Fructus* . . . semina irregulariter rotundato-oblonga, utrinque plus minusve truncata, circiter pollicaria, purpureo-maculata.—*H. spruceana*, Oliv. in Timehri, 1882, p. 50, non Muell. Arg.; *H. pauciflora*, Muell. Arg. in Linnæa, xxxiv. p. 203, et Fl. Bras. xi. 2. p. 300, pro parte; *H. pauciflora*, Kew Report, 1878 (1879), p. 39, quoad plantam prestoeanam.

British Guiana: without locality, *Rob. Schomburgk*, 817; *Rich. Schomburgk*, 1381; Mazaruni river, *Prestoe*; *Jenman*, 621; Essequebo river, *Jenman*, 1332; Trinidad Botanic Garden, cultivated, *Hart*, 3554.

When Bentham published *Siphonia pauciflora*, Spruce (Hook. Kew Journ. Bot. vi. p. 370) he suggested that specimens in the Hookerian herbarium from British Guiana, collected by Schomburgk, Parker, and Hancock, might be the same species. Subsequently Mueller Arg., in the place cited above, included Schomburgk's specimens under *Hevea pauciflora* without a doubt; and later (*Fl. Bras.* xi. 2. p. 300) he described Spruce's type (2691) of *pauciflora* under the name of *H. membranacea*; under *H. pauciflora* he included Schomburgk's Guiana specimens, and also gave Spruce's locality of *H. pauciflora*, but without a number. The types of all the species collected, and partly described and named by Spruce, and published by Bentham, are in the Kew Herbarium, and the only course is to retain the names for the species to which they were originally applied. Parker and Hancock's British Guiana specimens, mentioned by Bentham, are true *H. pauciflora*, so far as can be determined from leaves alone. Further, Jenman (725 and 2450) and im Thurn (200) have both collected *H. pauciflora* on the Mazaruni river, British Guiana. Of the distinct *H. guianensis*, Aubl., in which the anthers are 5 only and in one whorl (see pl. 2573, fig. 9), we have only seen specimens from French Guiana. The details of the flowers of *H. confusa* are given in plate 2574, figures 1–3; and the seed in plate 2575, figures 12 and 13.—W. Botting Hemsley.



M S. del. et lith

Plate 2571.

HEVEA BENTHAMIANA, *Muell. Arg.*

Euphorbiaceæ.

H. benthamiana, *Muell. Arg. in Linnæa*, xxxiv. p. 204 ; ad *H. discolorem* arcte accedit, recedit foliis floribusque ferrugineo-pubescentibus, alabastris acutis, seminibus ovoideis.

Arbor 20-pedalis, ramulis floriferis crassiusculis. *Folia* longe petiolata, petiolo gracili terete usque ad 6 poll. longo ; foliola discoloria, distincte petiolulata, vix coriacea, oblongo-ovata, 3-6 poll. longa, breviter acuminata vel interdum rotundata, supra glabra, nitida, subtus pallida, plus minusve ferrugineo-pubescentia, venis primariis lateralibus utrinque circiter 12. *Paniculæ* numerosæ, angustæ, folia æquantes vel breviores, ramulis gracillimis. *Flores* parvi vel minuti (bene evoluti non visi), brevissime pedicellati. *Perianthii segmenta* acuminata. *Stamina* 10, antheris biseriatis, seriebus approximatis, columna centrali supra antheras breviter producta. *Semina* ovoidea, maculata, 9–12 lin. longa.

North Brazil : Uaupés River, *Spruce*, 2560. Venezuela : cultivated, *Bovallius*.

Mueller Arg. (*Fl. Bras.* xi. 2, p. 301) quotes Spruce's 3326 under this species, but the specimens are so very young that it is impossible to refer them with certainty. The cultivated specimens from Venezuela consist of mature leaves and ripe seeds ; the former, having been sent in alcohol, are blanched and have a somewhat different appearance. It is possible, however, that this identification may prove erroneous. The specimens were sent as *H. brasiliensis*, which they certainly are not.—W. Botting Hemsley.

Fig. 1, portion of the under surface of a leaf ; 2, flower-buds, the terminal female, the lateral male , 3, a male flower, with the perianth laid open ; 4, andrœcium ; 5, a female flower, part of the perianth removed ; 6, vertical section of ovary. *All enlarged.*

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Plate 2572.

HEVEA MINOR, *Hemsl.*

Euphorbiaceæ.

H. minor, *Hemsl.* (*sp. nov.*); pro genere omnibus partibus parvis, seminibus albis immaculatis.

Arbor 15-pedalis, ramulis fructiferis graciliusculis glabris apice tantum foliiferis. *Folia* undique glaberrima, graciliter petiolata, petiolo terete apice biglanduloso $2\frac{1}{2}$–$3\frac{1}{2}$ poll. longo; foliola breviter petiolulata, coriacea, concoloria, lanceolata, $1\frac{1}{2}$ 4 poll. longa, utrinque attenuata sed vix acuta, costa supra impressa, subtus elevata, venis primariis lateralibus utrinque circiter 15 filiformibus. *Flores* ignoti. *Capsula* levis, circiter 1-poll. diametro; semina lævia, immaculata, **triangulari-oblonga, 6–7 lin. longa.**

North Brazil: in low woods on the Casiquiare river, *Spruce*, 3457.

This is so very distinct in the smallness of all its parts, and particularly in its small white seeds, that we have not hesitated to establish it on incomplete material.—W. Botting Hemsley.

Fig. 1, ventral view of seed; 2, dorsal view of the same. *Natural size.*

Pl. 2573.

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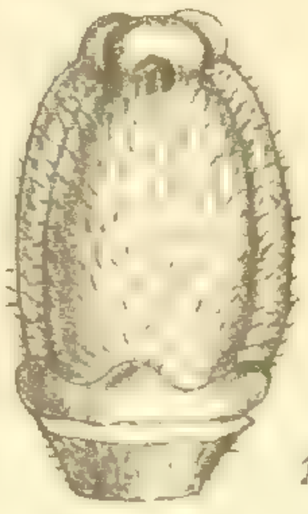
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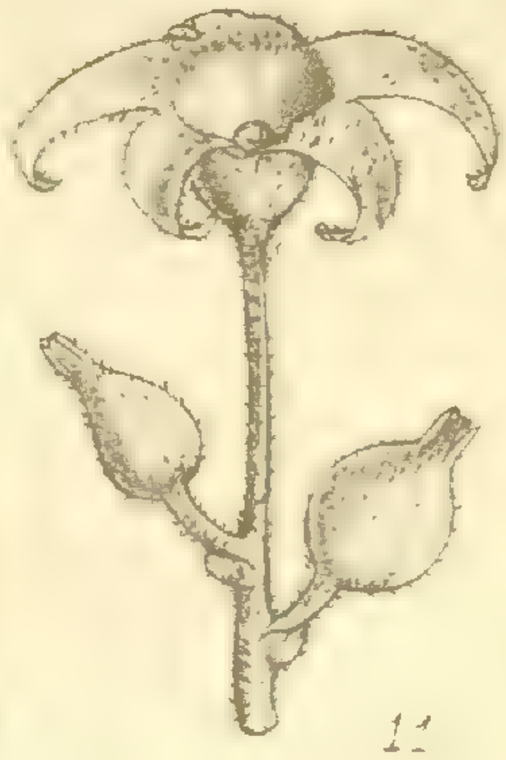
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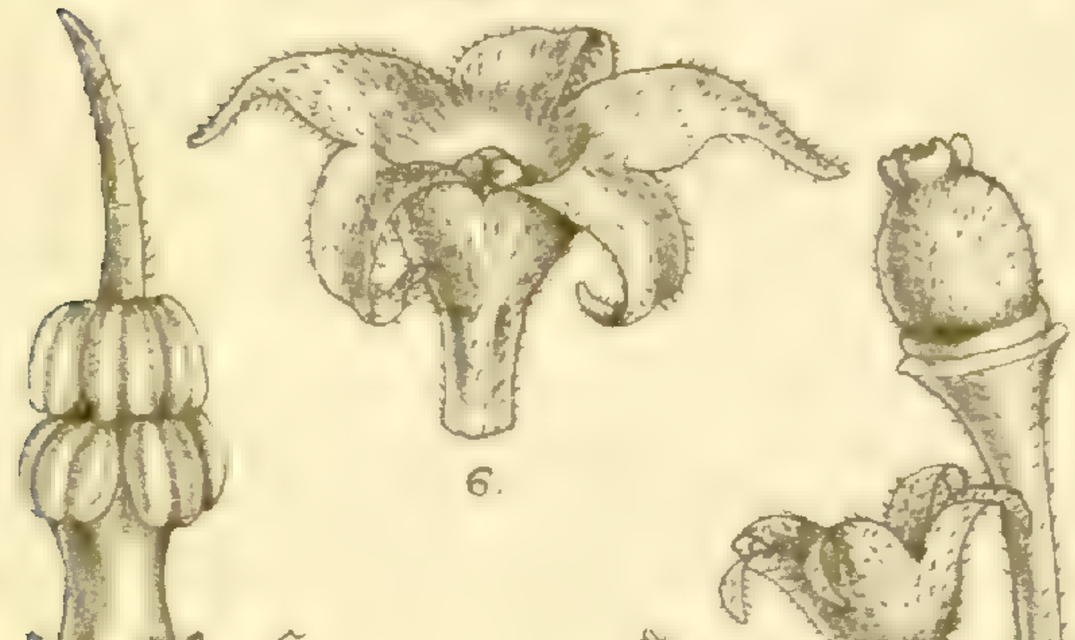
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Plates 2573 and 2574.

HEVEÆ SPECIERUM PLURIUM ANALYSES.

Euphorbiaceæ.

These plates are intended to elucidate the floral structure of some of the species of *Hevea*. The drawings were all made from type specimens, except those representing *H. brasiliensis* and *H. guianensis*, concerning which, however, there is perhaps no doubt, as they are quite distinct from each other, and have been generally recognised. Unfortunately, flowers of the same stage of development could not always be obtained, consequently the conditions for comparison are not so satisfactory as they might be. Many more flowers were examined than were drawn, and the conclusions arrived at may not, in all cases, appear justified by those represented; but finality is not claimed for these investigations. Mueller laid great stress on the disk, and established his *H. jamirensis* (Fl. Bras. xi. 2. p. 706) on the assumed absence of disk in the male flowers and some other minor characters. We cannot distinguish it from *H. brasiliensis*. These glands are often exceedingly minute, and easily overlooked in young flowers. The androecium affords much more reliable characters, though they are probably not absolutely constant. Usually the anthers are ten in number, and arranged on a slender column in two contiguous or separated whorls; but in *H. guianensis*, Aubl., there are only five, arranged in one whorl. In *H. lutea*, Muell. Arg., there are from 5 to 7 anthers in a broken whorl or whorls. W. Botting Hemsley.

H. brasiliensis, *Muell. Arg. in Linnæa*, xxxiv. p. 204. H. janeirensis, *Muell. Arg. in Fl. Bras.* xi. 2, p. 706. Siphonia brasiliensis, *H.B.K. Nov. Gen. et Sp.* vii. p. 171; *Collins, Report on Caoutchouc*, pl. 1. (1872).

Brazil: 'Province of Rio de Janeiro,'* *Glazion*, 1911 (*jamirensis*).

Plate 2573: Fig. 1, an expanded female flower and bud of a male flower; 2, pistil.

Brazil: 'Rio de Janeiro,'* *Glazion*, 8921.

Fig. 3, a male flower; 4, andrœcium.

* Almost certainly an error, as there is no other record of any species so far south. Perhaps cultivated.

North Brazil: Pará, *Spruce*, 136.

Fig. 5, a male flower; 6, andrœcium; 7, a female flower.

H. guianensis, *Aubl. Pl. Gui.* ii. p. 871. Siphonia elastica, *Pers. Syn.* ii. p. 588. H. peruviana, *Aubl. Pl. Gui.* iv. t. 335. Siphonia guyanensis, *Juss. ex Baill. Etud. Gén. Euph.* p. 326.

French Guiana: specimen *ex Herb. Mus. Par.* 6, without either locality or collector's name.

Fig. 8, a male flower; 9, andrœcium; 10, pistil.

H. rigidifolia, *Muell. Arg. in Linnæa*, xxxiv. p. 203. Siphonia rigidifolia, *Spruce, ex Benth. in Hook. Kew Journ.* vi. (1854) p. 371.

North Brazil: on the banks of the Uaupés River, Rio Negro, *Spruce*, 2527.

Fig. 11, a male flower; 12, perianth of female flower laid open, showing the disk; 13, pistil.

H. spruceana, *Muell. Arg. in Linnæa*, xxxiv. p. 204. Siphonia spruceana, *Benth. in Hook. Kew Journ.* vi. (1854) p. 370.

North Brazil: Santarem, *Spruce*, 999.

Fig. 14, a male flower laid open; 15, andrœcium; 16, a female flower laid open; 17, vertical section of ovary.

H. discolor, *Muell. Arg. in DC. Prodr.* xv. 2, p. 717. Siphonia discolor. *Spruce, ex Benth. in Hook. Kew Journ.* vi. (1854) p. 369.

North Brazil: Rio Negro, *Spruce*, 1171.

Fig. 18, flower buds; 19, a young male flower; 20, andrœcium; 21, pistil.

H. confusa, *Hemsl.* H. spruceana, *Oliv.* (*pro parte*) *in* Kew Report, 1880 (1881), p. 37, *et in Timehri*, 1882, p. 50; *Jenman, Report on India-rubber Trees*, 1883, pp. 7–11.

British Guiana: Mazaruni River, *Jenman*, 621.

Plate 2574: Fig. 1, an expanded female flower, the perianth falling away in a circumsciss manner, and buds of male flowers; 2, andrœcium; 3, pistil and part of disk detached.

H. pauciflora, *Muell. Arg. in Linnæa*, xxxiv. p. 203. H. spruceana, *Oliv.* (*pro parte*) *in* Kew Report 1880 (1881), p. 37, *et in Timehri*, 1882, p. 50; *Jenman, Report on India-rubber Trees*, 1883, pp. 7-11. H. membranacea, *Muell. Arg. in Mart. Fl. Bras.* xi. 2, p. 299. Siphonia pauciflora, *Spruce, in Hook. Kew Journ.* vi. (1854) p. 370.

British Guiana : Mazaruni River, *Jenman*, 725.

Fig. 4, pistil and male flowers; 5, andrœcium and disk; 6, a female flower; 7, perianth and disk, or staminodia.

North Brazil : On the banks of the Uaupés River, Rio Negro, *Spruce*, 2691.

Fig. 8, a male flower; 9, andrœcium; 10, pistil.

H. lutea, *Muell. Arg. in Linnæa*, xxxiv. p. 205. H. apiculata, *Baill. Adansonia*, iv. p. 285. H. peruviana, *Lechler, ex Benth. et Hook. f. Gen. Pl.* iii. p. 290. Siphonia apiculata, *Spruce, ex Baill. Adansonia*, iv. p. 285. S. lutea, *Spruce, ex Benth. in Hook. Kew Journ.* vi. (1854) p. 370.

North Brazil : Near San Carlos on the Rio Negro, *Spruce*, 3139 (*apiculata*).

Fig. 11, an expanded female flower and male flower buds; 12, an expanded male flower; 13, andrœcium; 14, pistil.

North Brazil : Mouth of Uaupés River, Rio Negro, *Spruce*, 2088 (*lutea*).

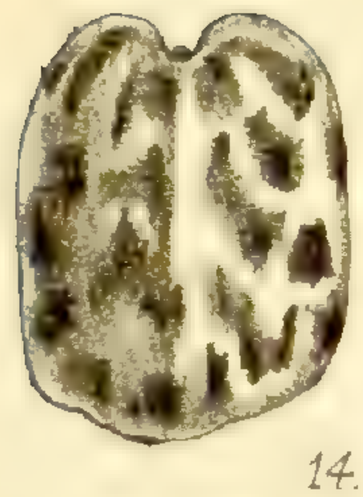
Fig. 15, an expanded female flower and male flower-buds; 16, young male flowers; 17, andrœcium; 18, pistil.

East Peru : at 2,000 ft., *Lechler*, 2360 (*peruviana*).

Fig. 19, female and male flower-buds; 20, a male flower laid open; 21, pistil.

Figures all enlarged; the flowers uniformly + 3.

Pl 2575.



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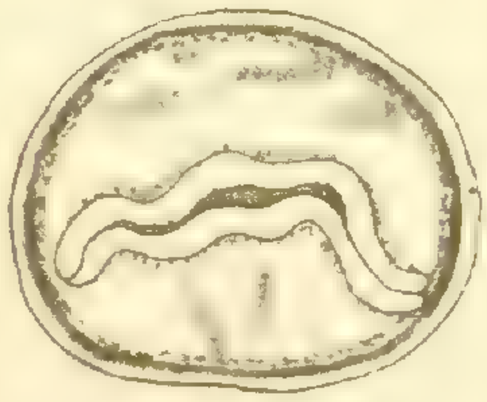

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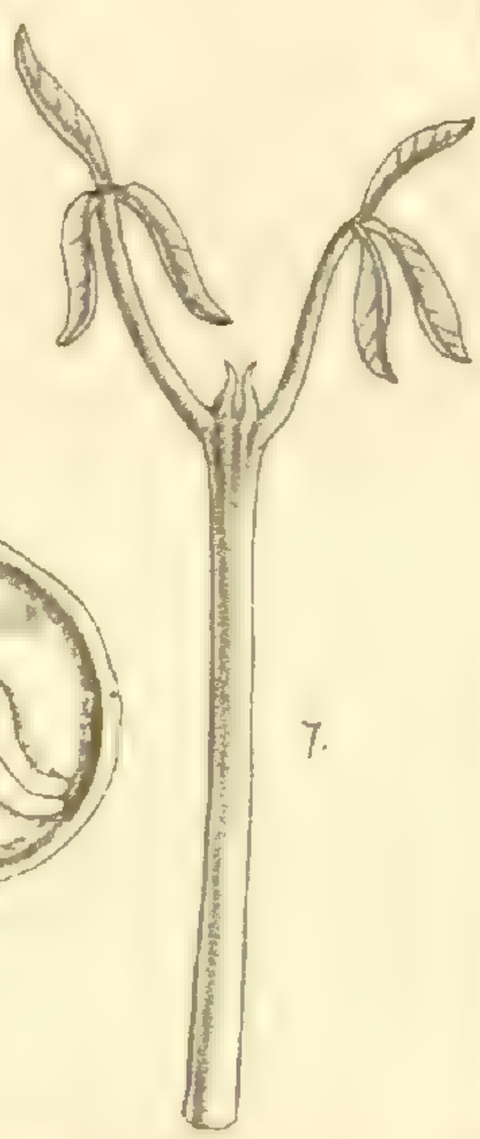

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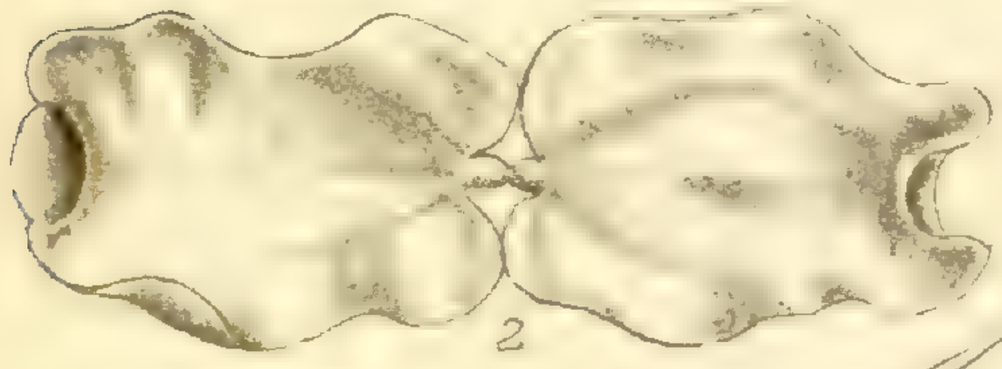

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H. confusa, *Hemsl. supra sub t.* 2570 ?

British Guiana : *Prestoe*, received in 1881.

Figs. 12 and 13, seeds.

H. pauciflora, *Muell. Arg. in Linnæa*, xxxiv. p. 203 ?

British Guiana : Mazaruni River, *im Thurn*, 200.

Figs. 14 and 15, seeds.

H. benthamiana, *Muell. Arg. in Linnæa*, xxxiv. p. 204 ?

Venezuela : *Bovallius*, cultivated on the Pulido estate, Venezuela.

Figs. 16 and 17, seeds.
All the figures, except 11, *natural size.*

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Plate 2576.

HEVEA SIMILIS, *Hemsl.*

Euphorbiaceæ.

H. similis, *Hemsl.* (*sp. nov.*); species ex affinitate *H. discoloris*, Muell. Arg., a qua differt foliolis angustioribus, floribus multo majoribus, perianthii segmentis lanceolatis acutis tubum æquantibus.

Arbor (*?*) ramulis ultimis glabris. *Folia* ad ramorum apices conferta, graciliter petiolata, petiolo 2–3 poll. longo apice biglanduloso; foliola distincte petiolulata, tenuia, vix coriacea, oblongo-lanceolata, 3½–5 poll. longa, acuminata, vix acuta, basi cuneata, discoloria, supra glabra, atrocastanea, subnitida, costa leviter impressa, subtus pallida, puberula, venis primariis lateralibus utrinque circiter 15 sat conspicuis. *Paniculæ* numerosæ, in axillis foliorum supremorum fasciculatæ, quam folia interdum longiores, atque flores pubescentes, ramulis pedicellisque gracilibus. *Flores* utriusque sexus magnitudine fere æquales, 6–8 lin. diametro. *Perianthii* segmenta lanceolata, longe acuteque acuminata, intus extusque pilosula vel pubescentia, demum recurva. *Stamina* 10, antheris biseriatis, seriebus disjunctis, columna centrali subspiraliter affixa; columna gracilis, subulata, supra antheras producta, glabra, basi glandulis 5 parvis globosis cincta. *Ovarium* supra medium puberulum basi glandulis 10 minutis cinctum. *Fructus* ignotus.

Brazil: **without locality,** *Ferreira*, 745.

Nothing more definite is known of the native country of this species, which has been confounded with *H. discolor*, Muell. Arg. in the Herbarium. It strongly resembles this species in foliage, but the flowers, especially the males, are much larger, and the perianth quite different in shape.—W. Botting Hemsley.

Fig. 1, expanded female flower and buds of male; 2, a male flower laid open; 3, perianth of a female flower; 4, pistil. *All enlarged.*

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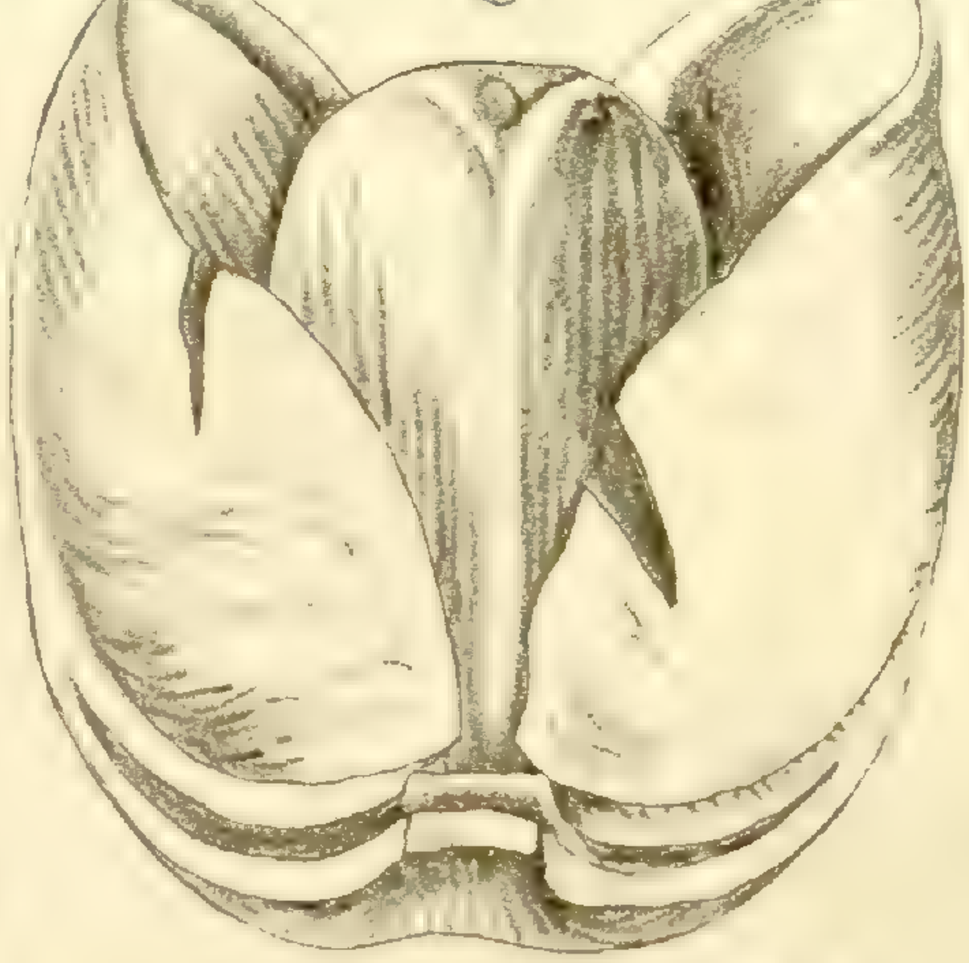

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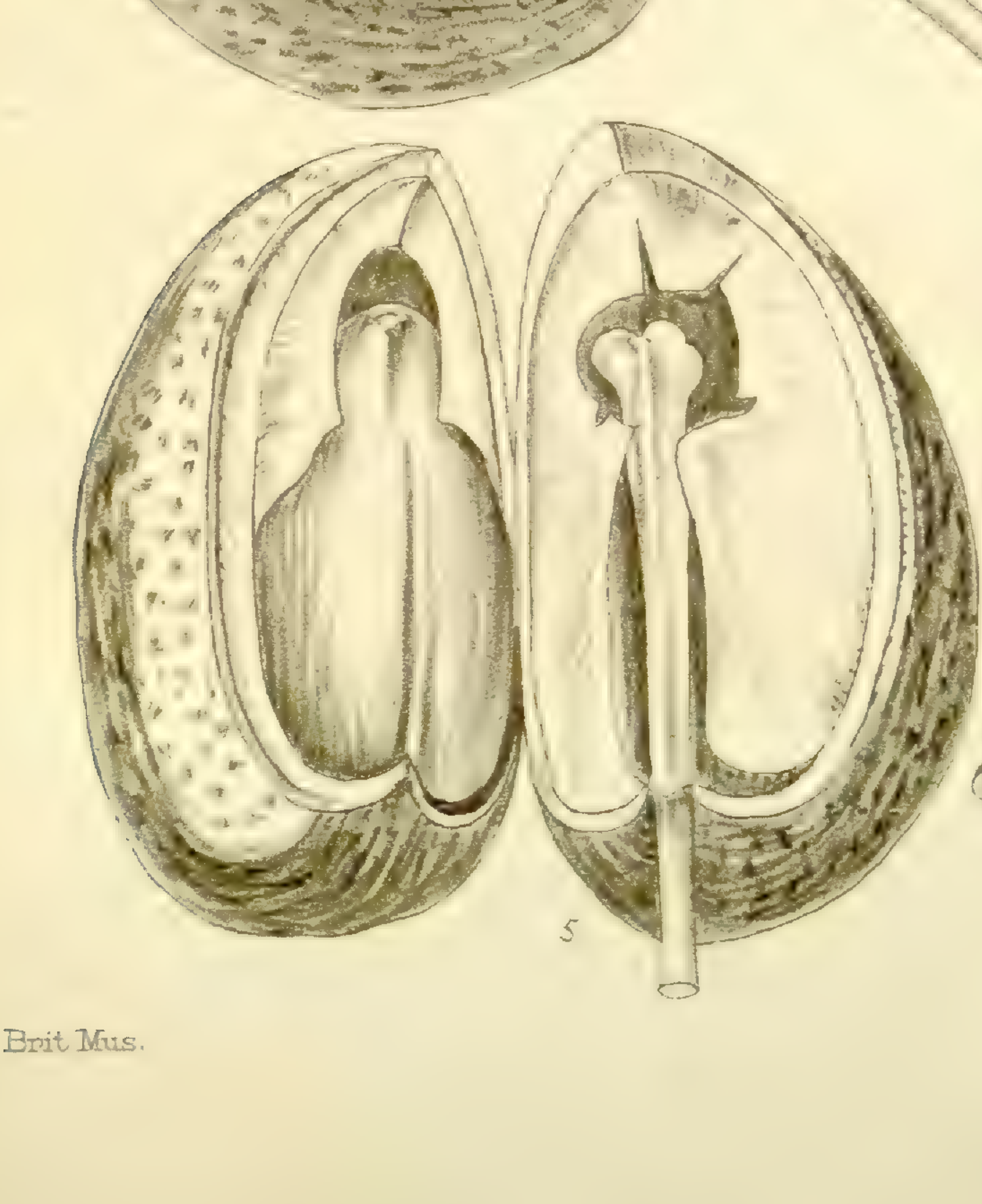

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Plate 2577.

HEVEA DISCOLOR, *Muell. Arg. et* H. species indeterminata.

Euphorbiaceæ.

The figures on this plate are from two unpublished engravings, numbered respectively 10 and 11, in the Herbarium of the British Museum, copied by permission of the Keeper for the use of Kew. Neither artist's nor engraver's name appears on the engravings, and no clue to their origin has been discovered. Even the handwriting, evidently that of a foreigner, has not been identified. Figures 1–3 are from the engraving numbered 10, and have been reproduced on account of their abnormal character. It is impossible to say to what species they belong, or whether they belong to more than one species. Probably to more than one, as figures 2 and 3 represent the extremes met with in the structure of the andrœcium of different species. In the very numerous flowers dissected by Miss Smith and myself, we found the andrœcium very uniform (*see* Plates 2573 and 2574). Figures 4–7 from the engraving numbered 11 are almost certainly of *H. discolor*, Muell. Arg. This differs from all the others of which I have seen fruit in having a pointed capsule and longer seeds. An unpublished name appears on the sheet, and the words "folia glabra in aliis sp. pubentia." In this character *H. discolor* differs from several of the other species of the genus.—W. Botting Hemsley.

Fig. 1, a pistil and adventitious stamens; and 2 and 3, andrœcia, of an unknown species of *Hevea*. Fig. 4, entire capsule; 5, two separate carpels of the same; 6, fully dehisced carpel; and 7, a seed, of *H. discolor*, Muell. Arg. *Figures* 1–3 *enlarged*; 4–7, *natural size*.

G Schweinfurth. del.

Plate 2578.

FICUS LAURIFOLIA, *Lam.*

Urticaceæ. Tribe Artocarpeæ.

Ficus (Urostigma) laurifolia, *Lam.* ; species *F. leucosticta*, Miq., guianensi maxime affinis.

Arbor 30-pedalis, trunco elevato sine radicibus aereis, ramis erectis apice dense foliatis. *Folia* lanceolata, 10 poll. longa, 3 poll. lata, glaberrima, supra nitida obscure viridia, subtus multo pallidiora, basi rotundata, interdum subacuta, apice **breviter acuminata, acumine** obtuso, nervo medio valido subtus sæpe roseo supra lutescente, nervis secundariis utrinque 10 strictis ; stipulæ 2, albidæ, longicuspidatæ ; petiolus subteres, canaliculatus, lamina duplo triplove brevior. *Receptacula* in axillis foliorum bina, juventute bractea mitræformi acuta obtecta, oblique globosa, 1 3 poll. diam., tomento brevissimo subvelutina, læte viridia, maculis albis planis picta. *Flores masculini* cum floribus femininis undique intermixti, bracteolis 3 lineari-cuspidatis suffulti ; perigonii laciniæ basi connatæ, oblongo-lineares, bracteolis vix æquilongæ. *Stamen* 1, filamento antheram albidam æquante, connectivo incrassato apiculato. *Flores feminini* omnes fertiles, bracteolis 3 lineari-spathulatis cuspidatis suffulti ; perigonii laciniæ basi connatæ, longe cuspidatæ. *Ovarium* stipitatum, oblongo-obovatum ; stylus ovarium superans, stigmate valido perigonium superante saturate purpureo bicruri, ramis subæqualibus recurvis.

Described from specimens cultivated in the garden of Signor H. Ragusa at Palermo, and in the gardens of Cairo and Alexandria.

It was probably introduced into Egypt from Palermo some thirty years ago. Whether South America is its native place or not is uncertain. Lamarck (*Encyc.* ii. p. 495) described it first in 1792, from a plant grown in the Jardin des Plantes at Paris, and specimens from the Herbarium of Jussieu are still preserved in the Museum of that institution. In 1806 Willdenow (*Sp. Plant.* iv. p. 1137) again described the plant from a specimen cultivated in the Berlin Botanic Garden, naming it *F. martinicensis* ; and Kunth (*Ind. Sem. Hort. Berol.* p. 16) in 1846 redescribed it and renamed it *F. rhododendrifolia* from specimens in the same garden. In Steudel's *Nomenclator* (ed. 2, i. p. 637) the name *F. neriifolia*, Reinw., is published for this species, as a naked name. In 1853 Miquel (in Martius's *Fl. Brasil.* iv. pt. 1, p. 96) named the plant *Urostigma Kunthii*, recognising the names

F. martinicensis, *F. rhododendrifolia* and *F. neriifolia* as synonyms; in 1867 (*Ann. Mus. Lugd. Bat.* iii. p. 221) he revived Reinwardt's name *F. neriifolia*, but a few pages later (*loc. cit.* p. 298) changed it to *F. Kunthii*. Lamarck's name had thus been completely lost; it may now be restored, and all the names mentioned above must stand as synonyms.—G. Schweinfurth.

Fig. 1, calyptriform bract enclosing the young geminate receptacles; 2, a male flower with three bracteoles; 3, the same laid open and bracteoles removed; 4, a fertile female flower and bracteoles. *All enlarged.*

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Plate 2579.

ERYNGIUM ROSEI, *Hemsl.*

UMBELLIFERÆ.

E. Rosei, *Hemsl.* (*sp. nov.*) ; ad *E. scaposum*, Turcz., magis accedit, foliis more *Alepideæ* margine setoso-aculeatis insigniter differt.

Herba perennis, subscaposa, undique glabra. *Folia* coriacea, indivisa, radicalia distincte petiolata, valde inæqualia, oblonga, oblongo-obovata, elliptica, vel interdum fere orbicularia, absque petiolo ½–2 poll. longa, margine crebre longeque setoso-aculeata, venis immersis obscuris ; petiolus infra medium vaginatus, laminam æquans vel brevior ; folia caulina pauca ad basin ramulorum inflorescentiæ tantum, radicalibus similia, sed sessilia et minora. *Scapi* vel caules floriferi 6–9 poll. alti, apice sæpius 3-ramosi vel potius 3 pedunculati, rarius 1–4 pedunculati, pedunculis sæpe bibracteatis. *Capitula* parva, subglobosa, absque bracteis 3–5 lin. diametro. *Involucri* bracteæ 9–12, stellatim divaricatæ, crassæ, rigidæ, oblongo-lanceolatæ vel oblanceolatæ, 6–9 lin. longæ, inter se obtegentes, sæpius integræ, interdum 1–4-dentatæ, dentibus apiceque aculeatis, supra margineque albidæ. *Paleæ* rigidæ, e basi latiuscula lineari-oblongæ, vix acutæ, flores paullo superantes. *Calycis* dentes ovati, apiculati sed vix aculeati, circiter ½ lin. longi. *Petala* apice 4-denticulata. *Carpella* (matura non visa) squamis biformibus ornata, squamæ in parte superiore majores, lanceolatæ, erectæ, cæteræ papilliformes ; vittæ, ut videtur, 5 ; styli suberecti.

MEXICO : between Dolores and Santa Gertrudis, and other localities, *J. N. Rose*, 2035, 3456, 3526.

This very distinct species is named after the collector, J. N. Rose, Ph.D., Assistant Curator of Botany in the Smithsonian Institution, Washington, U.S.A. The drawings were made from specimens lent by that institution, through the courtesy of the Secretary, Mr. S. P. Langley. It is remarkable for the marginal tentacle-like bristles of the leaves, a character it has in common with the closely allied South African genus *Alepidea*.—W. BOTTING HEMSLEY.

Fig. 1, a pale ; 2, a flower ; 3, a calyx lobe ; 4, a petal ; 5, a very young mericarp; 6, cross section of the same. *All enlarged.*

Plate 2580.

ERYNGIUM TENUISSIMUM, *Hemsl.*

Umbelliferæ.

E. tenuissimum, *Hemsl.* ; *E. tenue*, *Hook. et Arn. Bot. Beech. Voy.* p. 293, *non Lam.* ; ab omnibus speciebus mexicanis exiguitate recedit.

Caules gracillimi, erecti, subsimplices, circiter 6 poll. alti. *Folia* radicalia ignota, caulina rigida, glabra, angusta, aculeato-dentata, sæpius supra medium trilobata. *Capitula* ovoidea, cum bracteis circiter 3–4 lin. diametro, in axillis foliorum superiorum solitaria, breviter pedunculata. *Involucri* bracteæ atque paleæ rigidæ, linearisubulatæ, flores distincte superantes. *Sepala* oblonga, apiculata. *Petala* apice tridentata. *Ovarium* squamis parvis vestitum. *Fructus* ignotus.

Mexico : Jalisco, *Beechey*.

This species was founded on the single specimen here figured, and I have seen no specimen in the various herbaria I have examined that I could refer to it. *E. tenue*, Hook. et Arn., is referred to *E. Wrightii*, A. Gray, in the *Index Kewensis*, but it does not appear on what authority this reduction was made. It may possibly be a starved state of some species, though I have been unable to discover the connection. It certainly is not the Texan *E. Wrightii*.—W. Botting Hemsley.

Fig. 1, a bract; 2, a flower; 3, a petal. *All enlarged.*

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Plate 2581.

ERYNGIUM NASTURTIIFOLIUM, *Juss.*

Umbelliferæ.

E. nasturtiifo`ium, *Juss. ex Delar. Eryng. Monogr.* p. 46 t. 14; species ex affinitate *E. spiculosi*, Hemsl. et *E. Cervantesii*, Delar., a priore squamis carpellorum dimorphis, a posteriore foliis magis dissectis aculeatis paleis multo longioribus differt.

Herba biennis vel annua, undique glabra, a basi multiramosa, prostrata vel suberecta, caulibus a basi usque ad extremitates floriferis. *Folia* vix coriacea, radicalia pinnatifida vel lyrato-pinnatifida, $1\frac{1}{2}$–3 poll. longa, lobis aculeatis vel subinermibus ; caulina pinnatim vel subpalmatim lobata. *Capitula* numerosissima, in axillis foliorum solitaria, brevissime pedunculata, oblonga, 4-6 lin. longa. *Involucri* bracteæ circiter 7, rigidæ, anguste lanceolatæ, 3–5 lin. longæ, apice pungentes. *Paleæ* bracteis similes sed minores, flores longe superantes. *Calycis* lobi oblongi, apice subpungentes. *Petala* apice minute 5-dentata. *Carpella* minuta, infra apicem appendicibus hyalinis spiculiformibus ornata, circa apicem appendicibus oblongis cavis apiculatis uniseriatis instructa, columna centralis (rostrum) intra has appendices elongata, calycem gerens ; vittæ 5, minutæ, intrajugales.

Mexico : Acaponeta, Territory of Tepic, *J. N. Rose*, 1425.

When the drawing for this plate was made, the plant represented was believed to be specifically distinct from *E. nasturtiifolium*, Juss., as all the other specimens I had seen were of decidedly prostrate habit, and the leaves more herbaceous (almost fleshy), and almost unarmed. But the dissections of the flowers and fruit present no differences whatever, and specimens were found intermediate in habit and foliage. This species and *E. Cervantesii* have an exceedingly elegant fruit, bearing two kinds of soft cellular appendages, as described above. The following numbers in the Kew Herbarium belong to this species : Kerber, 388 ; Rovirosa, 381 ; Palmer, 302, 384 and 1112 ; Bourgeau, 2070 ; Berlandier, 2196 and 2323. The plant doubtingly referred by Hooker and Arnott (*Bot. Beech. Voy.* p. 293) to *E. Cervantesii*, Delar., also belongs here.—W. Botting Hemsley.

Fig. 1, dorsal view of a bract ; 2, ventral view of a bract ; 3, a flower ; 4, a petal ; 5, a young mericarp ; 6, a scale from the upper part of the fruit ; 7, a scale from the lower part of the fruit ; 8, cross section of a mericarp, *All enlarged.*

6

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2

1.

3.

Plate 2582.

DICRASTYLIS CARNEGIEI, *Hemsl.*

Verbenaceæ.

D. Carnegiei, *Hemsl.* (*sp. nov.*) ; florum capitulis parvis paniculatim dispositis.

Fruticulus dense ramosus, 8–10 poll. altus, undique albo-tomentosus, saltem in siccis, ramis gracillimis. *Folia* sessilia, crassa, mollia, linearilanceolata vel anguste oblonga, 4–6 lin. longa. *Flores* 2–3 lin. longi et diametro, subsessiles, capitati, capitulis pedunculatis paniculatis. *Calycis* crassi dentes breves, deltoidei. *Corollæ* tubus calycem paullo excedens ; lobi æquales rotundati, intus extusque hirsuti. *Stamina* 5, brevissime exserta, filamentis glabris. *Ovarium* pilis ramosis vestitum, stylo bifido stamina vix æquante.

Australia : interior of the north-west, in about 126° long. and 22° 30′ lat., *Carnegie.*

This is one of a few plants collected by the Hon. David Carnegie on his famous journey across the desert in 1896. It was found on the steep sides of sand-ridges over an area covered by two or three days' travel. Its perfume he describes as resembling that of lavender. An imperfect specimen (202), collected by McDougal Stuart on his journey in the interior of Australia in 1859, may belong to this species, as well as another fragment (65), collected in the vicinity of Lake Eyre by a Mr. Andrews, in 1875.—W. Botting Hemsley.

Fig. 1. a flower; 2, pistil and part of calyx; 3, corolla laid open; 4, vertical section of ovary; 5, cross section of the same; 6, a branched hair from the ovary. *All enlarged.*

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11.
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4.

Plate 2583.

ODONTOSPERMUM PYGMÆUM, *O. Hoffm.*

Compositæ. Tribe Inuloideæ.

O. pygmæum, *O. Hoffm. in Engl. & Prantl, Natürl. Pflanzenf.* iv. 5, p. 209 ; ab *O. aquatico*, Sch.-Bip. differt caule primario vix evoluto secundariis brevibus vel brevissimis, foliis distincte petiolatis.

Herba annua, erecta, interdum monocephala, cum foliis capitula superantibus, 1-5 poll. alta, caulibus crassiusculis dense foliatis. *Folia* spathulata, usque ad 3 poll. longa sed sæpius multo breviora, mollia, cinereo pubescentia. *Capitula* subsessilia, post anthesin bracteis valde hygroscopica. *Involucri* bracteæ externæ foliaceæ, herbaceæ, flores superantes, internæ breviores, crassæ, coriaceæ. *Receptaculi* paleæ, crassæ, rigidæ, flores involventes. *Achænia* angulata, hirsuta. *Pappi* paleæ circiter 10, fimbriatæ.—*Asteriscus pygmæus*, Coss. et Dur. in Bull. Soc. Bot. Fr. iv. p. 471 ; Boiss. Fl. Orient. iii. p. 179. *A. aquaticus* var. *pygmæus*, DC. Prodr. vii. p. 287. *Saulcya hierochuntica*, Michon, Voy. Relig. en Orient, ii. p. 383 ; Kew Bulletin, 1897, p. 210.

North Africa to Baluchistan : inhabiting very dry or desert regions in Algeria, Upper Egypt, Arabia, Palestine and Baluchistan, but apparently not found in Persia.

The object of figuring this plant was twofold: first to give a complete representation of it, including leaves, flowers, and fruit, and secondly to show how it differs from typical *O. aquaticum*. It is interesting on account of its remarkable rapid hygroscopic properties, and as being, according to some authorities, the true 'Rose of Jericho' of mediæval writers. In habit and ash-grey colour it is usually easily distinguished from typical *O. aquaticum*, which has an even wider range in the Mediterranean region, including South Europe, from Spain eastward through Greece &c. But we have not succeeded in finding any obvious differences in the flower-heads, flowers, or achenes. It was intended to figure only typical *O. pygmæum*, but later investigations seem to prove that figure 1 and the dissections, figures 5–9, belong to a reduced state of *O. aquaticum*, assuming that they are specifically different. Figure 1 is of a plant collected by Porta and Rigo in Spain, No. 311 (*Almeria in collibus aridissimis, solo calcareo*) and named '*Asteriscus aquaticus*, Mœnch,

forma pygmæa, Schultz.' Whether this name was intended to designate a reduced form of *O. aquaticum* as distinguished from *O. pygmæum* is uncertain.—W. Botting Hemsley.

Fig. 1, an entire plant in flower of *O. aquaticum* (Porta and Rigo, 311); 2, ditto of *O. pygmæum* in fruit with the bracts closely folded over the ripe achenes (Palestine, Dammann & Co.); 3, the same after being immersed in water a few minutes; 4, a leaf (Baluchistan, Stocks, 764); 5, a ray-flower; 6, ditto seen from below; 7, a disk-flower and pale; 8, anthers; 9, stigma (Porta & Rigo, 311); 10, a bract from the inner series of the involucre; 11, an achene; 12, a portion of the pappus (Dammann & Co.). Fig. 1–4 *natural size*; the rest *enlarged*.

1.

3

2.

M.S. del. et lith.

Plate 2584.

SARARANGA SINUOSA, *Hemsl.*, mas.

Pandanaceæ.

Sararanga, *Hemsl. in Journ. Linn. Soc.* xxx. p. 216, t. 11; et xxxii. p. 488; *Stapf, loc. cit.* pp. 479–487, tt. 4–7 (*generis character hic emendatus et auctus*). *Flores* dioici. *Florum* masculinorum spatha ignota; spadix elongatus, 1½–2½ ped. longus, anguste paniculatus, ramis primariis lateralibus subverticillatis brevibus (1½–5 poll. longis) densissime ramulosis multifloris, bracteis per anthesin jam delapsis; flores distincte pedicellati; perianthium gamophyllum, breve, cupulatum, margine obscure lobulatum vel crenatum; stamina numerosa, libera, filamentis apice filiformis deorsum incrassatis (obclavatis), antheris amplis versatilibus, pollinis granis ellipsoideis minute papillatis. *Florum* femineorum spatha foliacea, folio parvo simillima, sed omnino inermis, circiter bipedalis; spadix amplissimus, pendulus, 4–5 ped. longus, densissime racemoso-paniculatus, rhachi prope basin usque 4½ poll. diametro, ramulis compressis; flores breviter pedicellati; perianthium liberum, subcarnosum, gamophyllum, truncatum vel irregulariter 3–4-lobulatum, fructiferum occultum; staminodia nulla; gynæcei carpella numerosissima, uniovulata, sinuoso-biseriata, seriebus nunc e centro gynæcei trifurcatis, ramificationibus bifurcatis, nunc valde irregularibus, serierum dispositio stigmatibus sessilibus magnis discoideis vel hippocrepiformibus bene indicata. *Fructus* parvus, carnosus, drupoideus, irregulariter 2–4-lobatus, multipyrenus, pyrenis osseis unispermis; semen a funiculo elongato e basi fere anguli interni loculi pendulum, embryone conoideo basilari.

S. sinuosa, *Hemsl.* (*sp. unica*). *Arbor* pandaniformis, sed foliis non spiraliter dispositis, radices aëreas haud emittens, usque ad 60 ped. alta, trunco nudo altitudine 20–30 ped. tantum ramoso, ramis paucis divaricatis. *Folia* ad apices ramorum congesta, quadrifariam disposita, crassissima, coriacea, lineari-lanceolata, usque ad 10 ped. longa et 4½ poll. lata, præcipue basin et apicem versus atque in margine et secus costam aculeis parvis vel minutis instructa, apice vix acuta.

Solomon Islands: Siota, Island of Florida, *Comins*. Also in several other islands of this group and in Jobie I., New Guinea.

The accompanying plate and above description practically complete the definition of the remarkable genus *Sararanga*, but as only a very

imperfect male inflorescence has reached Kew, details of the spathe and bracts are wanting. As recorded in the *Kew Bulletin* (1898, p. 100), the Rev. R. B. Comins sent a short branch bearing a mature female inflorescence (fruiting spadix), and a male inflorescence in a very advanced stage and much damaged by insects. It was he also who discovered that the leaves are quadrifariously arranged, not spirally as in *Pandanus*. The following extracts are from his notes accompanying the specimens: 'Having seen the plates and descriptions of *Sararanga sinuosa* . . . I thought I recognised the same, or something very similar, growing freely on the edges of a swamp, near our Mission Station of St. Luke's, Sicta. I was further interested in the particulars of the same given by the officers of H.M.S. "Penguin" (*Kew Bulletin*, 1895), with which in the main our specimens seem to agree. It certainly seems to prefer damp situations, although we have a few on the hill-side thirty or forty feet above the swamp. They grow in clumps of three or four amongst other ordinary Pandanaceae. I however searched in vain for young seedlings. The leaves furnish an extra strong fibre valued for tying the thatch and beams of houses. It never has any adventitious roots, but a general thickening of the stem at its base. It rises from twenty to thirty feet and then branches, more regularly than most Pandanaceae, the branches running at an angle of 45° to 60° from the base line. . . . The description of the female flowers and fruit agrees with what I found, but when we come to leaves I have to point out what I imagine to be a very important difference. I could detect no screwthread, such as one expects in a *Pandanus*, and the leaves run in fours [four lines] each one above its fellow in a direct line. . . . Female flowers and fruits abounded, but I was at a loss to find male blossoms in a proper state to forward to Kew. I observed various trees with a terminal inflorescence on an altogether smaller scale . . . having the typical 4 leaved stem, and so I hoped I had found what I was searching for; but all were dried and much injured by insects, so that I hesitated to gather them. I have sent the best I could get, and will try for better specimens at another time of year. I had no microscope or means of making a more exact examination of the structure.' At first these specimens looked hopeless, but after much washing we got rid of the dead insects and excreta and found some perfect flowers. — W. Botting Hemsley.

Fig. 1, a male flower; 2, a stamen; 3, a pollen-grain. *All enlarged; the pollen* ×1000.

3.

4

5.

1. 2.

6

8

7.

9.

10.

M S. del et Lith

Plate 2585.

LIMACIA MONILIFERA, *Burkill.*

MENISPERMACEÆ.

L. monilifera, *Burkill* (*sp. nov.*); species *L. cuspidatæ*, Hook f. et Thoms., affinis, differt foliis ellipticis, carpellis basi pilis coronatis, petalis nullis, cavernulis fructus duplo majoribus.

Frutex alte scandens; rami vetustiores ceu brachium hominis crassi; rami juniores pilis griseis dense tecti, mox glabrescentes. *Folia* subelliptica, apice obtusa vel rotundata, nec cuspidata, basi obtusa, utroque latere glabra, nitentia, 3–4 poll. longa, 2–3 poll. lata; petiolus $1\frac{1}{4}$–$1\frac{1}{2}$ poll. longus. *Inflorescentia* feminea vel in axilla folii exacte inserta vel supra basin petioli paullo remota, 1–$1\frac{1}{2}$ poll. longa, pilis brevibus griseis obtecta, basin versus ramos 2–3 gerens; flores ad 15, brevissime pedicellati. *Sepala* majora $\frac{1}{2}$ lin. longa, glabra. *Petala* nulla. *Staminodia* 6–7. *Carpella* 3–4, basi corona pilorum cincta, in fructus 1–2 tantum maturescentia. *Fructus* maturi læves, globoso-lenticulares, $4\frac{1}{2}$–5 lin. diam., quaque cavernulas duas, iis L. cuspidatæ duplo majores, 2 lin. diam. tenens. Flores masculini ignoti.

SOLOMON ISLANDS: Lalavanola, Island of Florida, *Comins*, 350.

The natives use the fruits as beads, scraping off the pericarp, and stringing them through the central cavities. Such a bead is shown in fig. 7, and a portion of a necklace into which they enter in fig. 10.—
I. H. BURKILL.

Fig. 1, a female inflorescence; 2, a female flower; 3, one of the larger sepals; 4, a staminode; 5, carpels; 6, a carpel in section; 7, bead manufactured from a fruit; 8, fruit in vertical section; 9, in transverse section; 10, portion of a necklace made of beads and *Limacia* fruits. *Figures* 1–9 *enlarged.*

2.

1.

A

3.

4

B

5

8

7

6.

M.S. del. et lith.

Plate 2586.

RANUNCULUS INVOLUCRATUS, *Maxim.* et R. SIMILIS, *Hemsl.*

Ranunculaceæ.

R. involucratus, *Maxim. Fl. Tangut.* p. 15, t. 22, figg. 7–13.

North-Eastern Tibet: at 14,000 to 14,500 feet, without special locality, *Przewalski*; near Horpa Tso, at 17,300 feet, *Deasy & Pike*, 817.

R. similis, *Hemsl. (sp. nov.)*; ad *R. involucratum*, Maxim. valde accedit, sed sepalis hirsutis, floribus luteis, carpellis dorso carinatis nec alatis differt.

Herba perennis, carnosa, subscaposa, fere undique glabra, radice carnoso-fibrosa. *Caulis* simplex, erectus, 1½ 2 poll. altus, uniflorus. *Folia* crassa, radicalia 2–3, caulem subæquantia, longe petiolata, rotundata, 3-6 lin. diametro, apice 3 5-lobulata, caulina 2–3, similia, sessilia, involucrum formantia. *Flos* solitarius brevissime pedunculatus, 6–9 lin. diametro. *Sepala* crassa, 5 (interdum 6 -7), oblongo-obovata, subtruncata, dorso hirsuta. *Petala* obovata, emarginata, sepala paullo superantia. *Stamina* numerosissima. *Carpella* numerosissima, glabra, dorso carinata, stigmate sessili.—*Ranunculus involucratus*, Hemsl. in Journ. Linn. Soc. xxx. p. 107, vix Maxim.

Tibet: sandy earth and gravel in valleys at 17,500 feet, *Thorold*; in 81° 40′ long. and 34° 50′ lat. at 17,000 feet, *Deasy & Pike*; in about 82° 30′ long. and 35° lat. at 16,649 feet, *Welby & Malcolm*.

I am still somewhat doubtful about these scapose *Ranunculi*, having in the first instance identified Dr. Thorold's specimen with *R. lobatus*, Jacquem. ("*Voy. Bot.*" p. 5, t. 1, B.), taking it to be a reduced state of that species. Subsequently I thought it was *R. involucratus*, Maxim.; but then came a specimen in Capt. Deasy and Mr. Arnold Pike's collection (817), figured above, which proved to be exactly Maximowicz's plant. Although there are certain differences, I am not sure that they will not all prove to be *R. lobatus*, Jacquem, the differences being due to local conditions.– W. Botting Hemsley.

Fig. A. *Ranunculus involucratus*, Maxim. *Natural size.*
Fig. 1, a sepal; 2, an anther and part of filament; 3, an achene; 4, the same in section. *All enlarged.*

Fig. B. *Ranunculus similis*, Hemsl. *Natural size.*
Fig. 5, a sepal; 6, anthers and part of filament; 7, a carpel; 8, the same laid open. *All enlarged.*

M S delet lith.

Plate 2587.

SENECIO (§ CREMANTHODIUM) DEASYI, *Hemsl.*

Compositæ. Tribe, Senecionideæ.

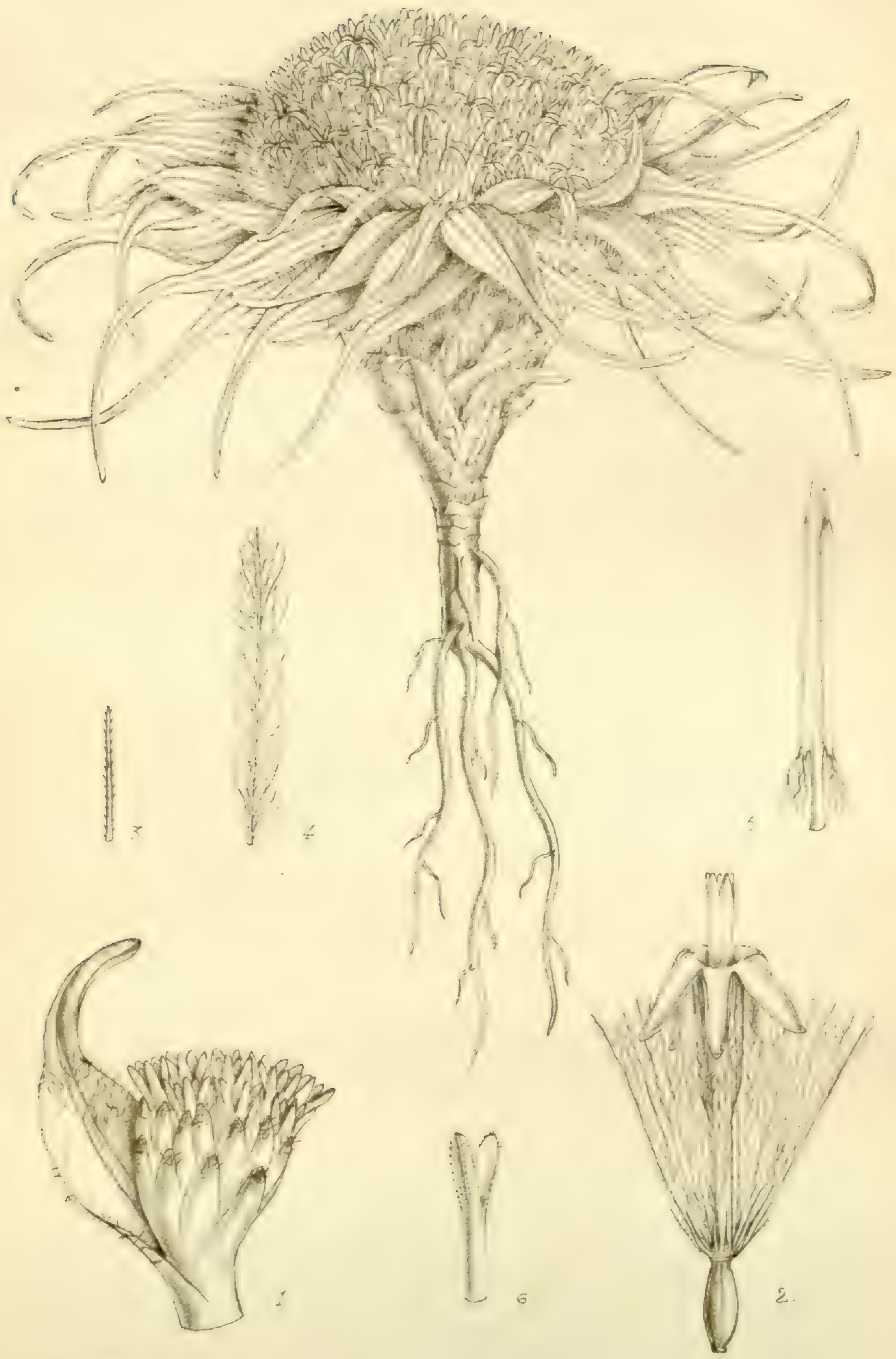
S. Deasyi, *Hemsl.* (*sp. nov.*); species ex affinitate *Cremanthodii humilis*, Maxim., sed robustior, foliis carnosis integris.

Herba perennis, subscaposa, radicibus cylindricis elongatis carnosis. *Caules* erecti, 2–3 poll. alti, monocephali, 2–3-foliati. *Folia* radicalia carnosa, longe petiolata, quam caules breviora, ovalia, elliptica vel oblonga, absque petiolo ½–1 poll. longa, glabra, integra, venis immersis inconspicuis; folia caulina sessilia, inferiora vaginantia, decolorata, superiora viridia, subtus primum plus minusve lanata. *Capitula* multiflora, 1–1½ poll. diametro. *Involucri* bracteæ 12–15, uniseriatæ, oblongo-lanceolatæ, flores radii excedentes, basi connatæ extus araneoso-lanatæ. *Florum* radii corollæ apice rotundatæ, minute tridentatæ. *Achænia* ovoidea vel ellipsoidea, glabra; pappi pili molles, quam corollæ disci fere dimidio breviores.

Tibet: Horpa Tso, at 17,500 feet, where there was very little vegetation of any kind, *Deasy & Pike*, 827.

Dr. W. G. Thorold collected a single specimen (33) of what appears to be the same species, at an elevation of 17,600 feet. He does not give the exact locality, but merely states that it grew in water-logged stony soil. Mr. Arnold Pike notes that it was very scarce, and describes the flower-heads as having a yellow ray and orange centre.—W. Botting Hemsley.

Fig. 1, two involucral-bracts seen from the outside; 2, a ray-flower; 3, portion of a bristle of the pappus; 4, a disk-flower; 5, anthers; 6, part of style. *All enlarged.*



M.S. del et lith.

Plate 2588.

SAUSSUREA WELLBYI, *Hemsl.*

Compositæ. Tribe Cynaroideæ.

S. Wellbyi, *Hemsl.* (*sp. nov.*) ; ad *S. Stellam*, Maxim. et *S. Thoroldii*, *Hemsl.* accedit, a priore foliis basi lanatis, a posteriore foliis integris differt.

Herba monocarpica, subacaulis, caule simplici. *Folia* numerosa omnia radicalia, herbacea, rosulata, e basi ovata linearia, maxima 3 poll. longa, vix acuta, integra, infra medium utrinque sericeo-lanata, supra medium glabra. *Capitula* numerosa, sessilia, arctissime conferta, multiflora. *Involucri* bracteæ 3-seriatæ, oblongo-lanceolatæ, vix acutæ, apice tantum pilis paucis instructæ, interiores flores fere æquantes. *Receptaculi* setæ numerosæ, quam achænia multo breviores. *Flores* purpurei. *Pappi* setæ 2-seriatæ, interiores plumosæ, corollæ tubum fere æquantes, exteriores multo breviores simplices. *Achænia* glabra.

Tibet : between 90° and 96° long., and 35° and 36° lat., at 14,600 to 16,800 feet, *Wellby & Malcolm*.

Saussurea Wellbyi, Hemsl., is one of a small but exceedingly interesting collection of plants made by Captain Wellby and Lieutenant Malcolm on their memorable journey across Tibet, from west to east. Considering the hardships and privations they underwent, it is surprising they were able to bring away anything. Kew previously possessed no specimen of this species, nor have I been able to identify it from descriptions of species not represented in the Herbarium. A note accompanying the specimens runs as follows : 'Found widely distributed in flower during August and September.'—W. Botting Hemsley.

Fig. 1, a single flower-head ; 2, a flower ; 3 and 4, an outer and an inner bristle of the pappus ; 5, an anther ; 6, style. *All enlarged.*

M S del et lith.

Plate 2589.

SMILAX UTILIS, *Hemsl.*

Liliaceæ. Tribe Smilaceæ.

S. utilis, *Hemsl.* (*sp. nov.* ?) ; ex affinitate *S. ornatæ*, Lemaire (*Bot. Mag.* t. 7054) differt umbellis simplicibus longe pedunculatis.

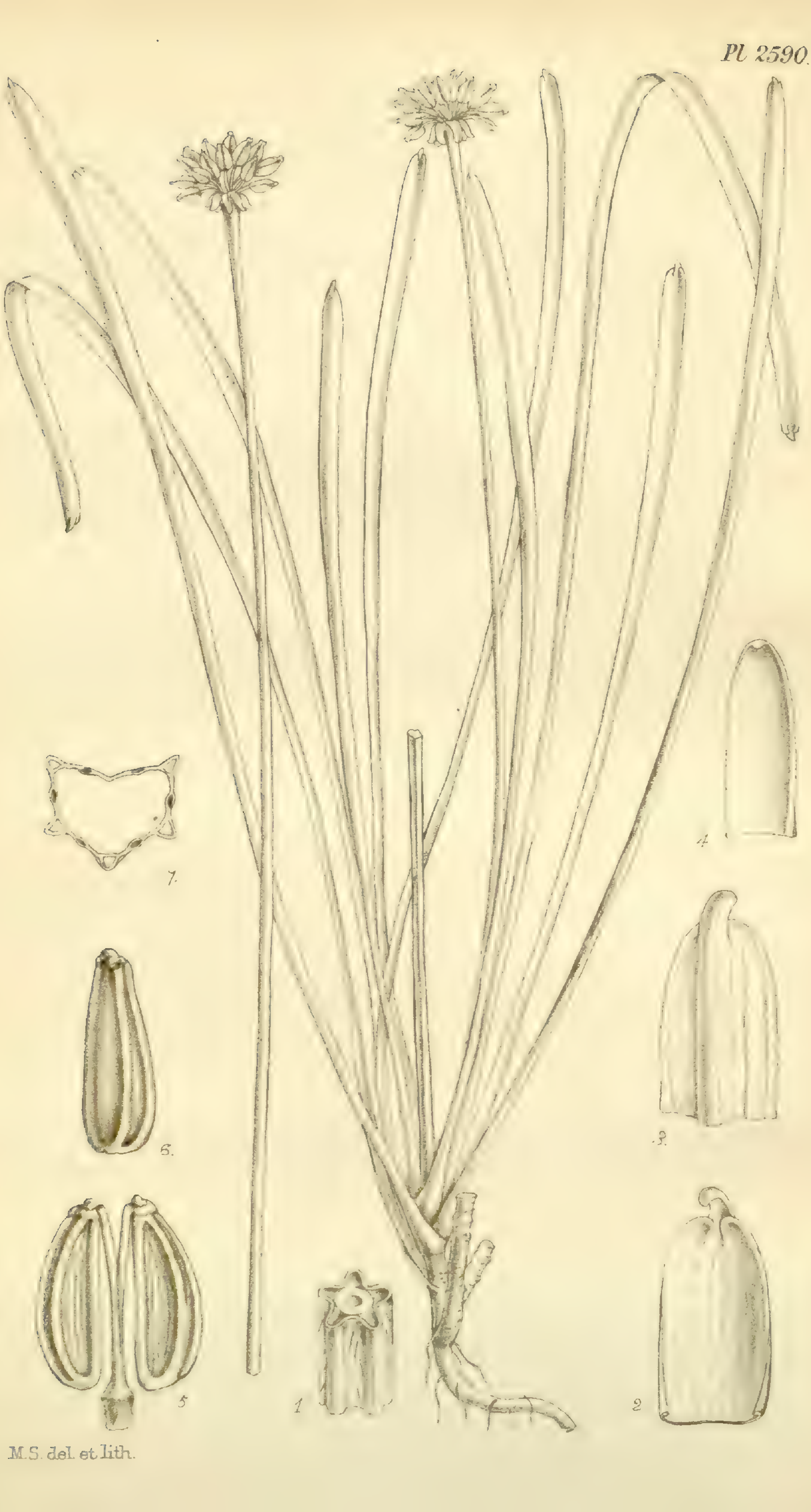
Frutex alte scandens, omnino glaber, aculeis paucis parvis armatus, caulibus vel ramis sterilibus quadrangularibus, ramulis floriferis teretibus. *Folia* distincte petiolata, tenuiter coriacea, circumscriptione valde variabilia, inferiora late cordato-ovata, apice rotundata, interdum pedalia vel ultra, 7-nervia ; folia ramulorum floriferorum multo minora, ovato-lanceolata, acuminata, 5-nervia, cirrhis gracilibus quam foliis dimidio brevioribus et in ramulis floriferis minus evolutis. *Umbellæ* florum femineorum solitariæ, axillares, graciliter pedunculatæ, multifloræ, pedicellis brevibus gracilibus. *Perianthii* segmenta subæqualia, oblonga, obtusa. *Ovarium* glabrum, stigmatibus subsessilibus. *Bacca* ignota.

Jamaica : cultivated, *D. Morris.*

This *Smilax* is the one cultivated in Jamaica, and believed to be of Venezuelan origin, though this cannot be verified by any specimens Kew possesses from that country. It has also been propagated at Kew, and sent to Ceylon and other colonies ; yet it is important to remember that it does not yield the sarsaparilla known in commerce as 'Jamaica sarsaparilla.' In consequence of the original *Smilax officinalis*, H.B.K. having been founded on leaves only, much confusion has arisen, inasmuch as the leaves vary greatly on the main stems and flowering branches, and again according to the vigour of the plant. Sir Joseph Hooker (*Botanical Magazine*, cxv. (1889) t. 7054) has shown that the plant accepted by Flückiger and Hanbury (*Pharmacographia*, ed. 1, p. 639), and Bentley and Trimen (*Medicinal Plants*, iv. t. 289) as *S. officinalis*, H.B.K., is different, and he figures it under the name of *S. ornata*, Lemaire. He also expresses the opinion that the plant cultivated in Jamaica differs from both, and with this we agree. He further mentions that only the female was known there. Since the accompanying plate was prepared, Kew has received from Mr. J. C. Willis, the Director of the Ceylon Botanic Garden, specimens of a

male *Smilax*, which he states was received from Kew as the [cultivated] Jamaica sarsaparilla. It is not included in the above description, because there is just an element of doubt of its being the same species. The leaves might very well belong to *S. utilis*, except that in the flowering branches there is a much greater development of the basal or leafy portion of the stipules, and no, or only rudimentary development of tendrils. And the leaves disarticulate, apparently before the flowers expand, just above the point on the petiole to which the stipules are adnate. The flowers are in simple umbels, borne on very slender peduncles, sometimes solitary, sometimes in pairs. As the *Smilaces* are supposed to be strictly dioecious, and the commercial forms are usually propagated vegetatively, it is difficult to account for this male in Ceylon.—W. Botting Hemsley.

Fig. 1, portion of branch petiole and tendrils; 2, a bud; 3, an expanded female flower. *All enlarged.*



M.S. del. et lith.

OREOMYRRHIS LINEARIS, *Hemsl.*

UMBELLIFERÆ.

O. linearis, *Hemsl.* ; a speciebus hactenus cognitis foliis linearibus indivisis gramineis differt.

Herba scaposa, perennis (?), fere undique glabra, caulibus numerosis brevissimis. *Folia* (petioli ?) omnia subradicalia, coriacea, rigidiuscula, erecta, conferta, linearia, 6–8 poll. longa, 1–2 lin. lata, deorsum vaginantia, apice minute trilobata, lobis obtusis, intermedio (lamina ?) paullo longiore incrassato incurvo. *Scapi* graciles, folia saepius superantes, interdum fere pedales, monocephali, sulcati, parce strigillosi. *Umbellæ* simplices, 6–9 lin. diametro, 10–20 florae. *Involucri* bracteae 5–7, coriaceae, oblongae, pedicellos aequantes, concavae, apice apiculatae. *Carpella* glabra, dorso 3-costata, stylis brevissimis, valleculis univittatis, commissura 2-vittata.

BRITISH NEW GUINEA: Mount Scratchley, 10,000–13,000 ft., and Wharton Range, 11,100 ft., *Giulianetti.*

This is one of a number of interesting plants collected by Mr. A. Giulianetti in the mountains of British New Guinea, and presented to Kew by Sir William MacGregor. A full account of these plants will shortly appear in the *Kew Bulletin*. The genus *Oreomyrrhis* is common to the Andes, New Zealand, and Australia, and this is apparently the first species found in New Guinea. In foliage it differs entirely from all the previously known species, whilst in other characters it is quite normal. The foliar organs are apparently flattened petioles terminating in a minute rudimentary blade.—W. BOTTING HEMSLEY.

Fig. 1, cross section of a flower-scape; 2, apex of a leaf, seen from above; 3, the same from below; 4, an involucral bract; 5, a fruit; 6, side view of a single carpel; 7, cross section of a carpel. *All enlarged.*

2

1.

M.S. del. et lith.

QUERCUS CARLESII, *Hemsl.*

CUPULIFERÆ.

Q. Carlesii, *Hemsl.* (*sp. nov.*); species ex affinitate *Q. cuspidatæ*, Thunb., differt imprimis foliis minus coriaceis glandibus minoribus sphæroideis.

Arbor parva ramulis ultimis glabris vel cito glabrescentibus gracillimis. *Folia* distincte petiolata, tenuia, coriacea, glabra, oblongo-lanceolata, cum petiolo 2–3 poll. longa, caudato-acuminata, præcipue supra medium paucidenticulata, subtus pallida, venis utrinque inconspicuis. *Flores* feminei spicati, spicis axillaribus folia paullo superantibus. *Involucrum* cinereo-pubescens, nucem omnino includens, demum irregulariter ruptum, squamarum apicibus liberis parvis. *Glans* sphæroidea, pisiformis, 3–4 lin. diametro.

CHINA: Kushan Temple, Foochow, Fokien, *W. R. Carles.*

This species is remarkable for its very small acorns.—W. BOTTING HEMSLEY.

Fig. 1, an acorn; 2, the same with the cup removed. *Both enlarged.*

M.S. del et lith.

Plate 2592.

MOSELEYA PINNATA, *Hemsl.*

Scrophulariaceæ.

Moseleya, *Hemsl.* (*nomen novum*); Hornemannia, *Benth. olim in DC. Prodr.* x. p. 428, *non Vahl, nec aliorum. Genus* a *Sibthorpia* differt foliis pinnatifidis, floribus majoribus corolla distincte tubulosa.

M. pinnata, *Hemsl.* (*species unica*).

Herba perennis, pilis paucis appressis vestita. *Caules* gracillimi, prostrati, ad nodos radicantes, nodis sæpissime 1-foliatis ac 1-pedicellatis. *Folia* alterna, erecta, longe petiolata, tenuia, herbacea, circumscriptione cordato-ovata vel interdum fere rotundata, absque petiolo $\frac{3}{4}$-$1\frac{1}{2}$ poll. longa, pinnatisecta, segmentis sæpissime 5 obovato-rotundatis lobulato-crenatis; petiolus gracilis, 2–5 poll. longus. *Pedicelli* axillares, solitarii, graciles, erecti, folia fere æquantes, post anthesin retracti, spiraliter torti, fructiferi humo appressi. *Flores* albi, tenuissimi, 6 9 lin. diametro. *Calyx* æqualis, alte 5-lobatus, lobis erectis ovato-lanceolatis vix acutis. *Corolla* obscure bilabiata, infundibuliformis, tubo brevi intus hirsuto, lobis 5 parum inæqualibus. *Stamina* 4 (postico deficiente), æqualia, fauce corollæ inserta, erecta, quam corollæ lobi breviora, filamentis filiformibus glabris. *Discus* carnosus, oblique cupularis. *Ovarium* ovoideum, supra medium hirtellum, stylo filiformi vix exserto; ovula in quoque loculo circiter 10. *Capsula* matura ignota.—*Hornemannia pinnata*, Benth. in DC. Prodr. x. p. 428; *Sibthorpia pinnata*, Benth.; Hook. f. Fl. Brit. Ind. iv. p. 288.

China: Damp woods on the Great Black Mountain, at 9000 feet, Mengtse, Yunnan, *Hancock*, 302. Also from Nepal, *Wallich*; and Tonglo, Sikkim, at 8500 feet, *C. B. Clarke*, 35,733.

The excellent specimens of this plant presented to Kew by W. Hancock Esq., of the Imperial Chinese Customs, enable us to figure and describe it much more fully than was previously possible. It is here restored to generic rank, because it is so very different from all the genuine species of *Sibthorpia*. It is named in memory of the late Professor H. N. Moseley, F.R.S., who, although not a trained botanist, did good service for Botany on the voyage of the 'Challenger.'—W. Botting Hemsley.

Fig. 1, pistil, disk and part of calyx; 2, a hair from the calyx; 3, a corolla laid open; 4, a hair from the corolla; 5, a longitudinal tangential section through one of the cells of the ovary; 6, a cross section of the ovary. *All enlarged.*

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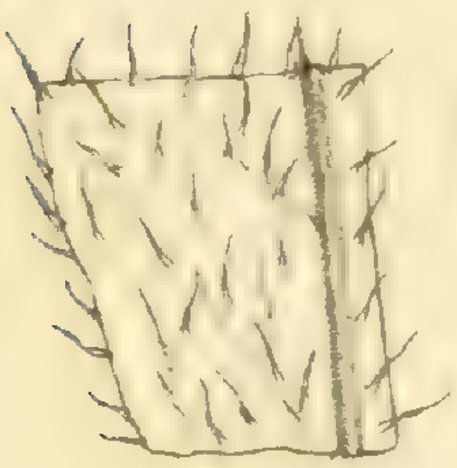

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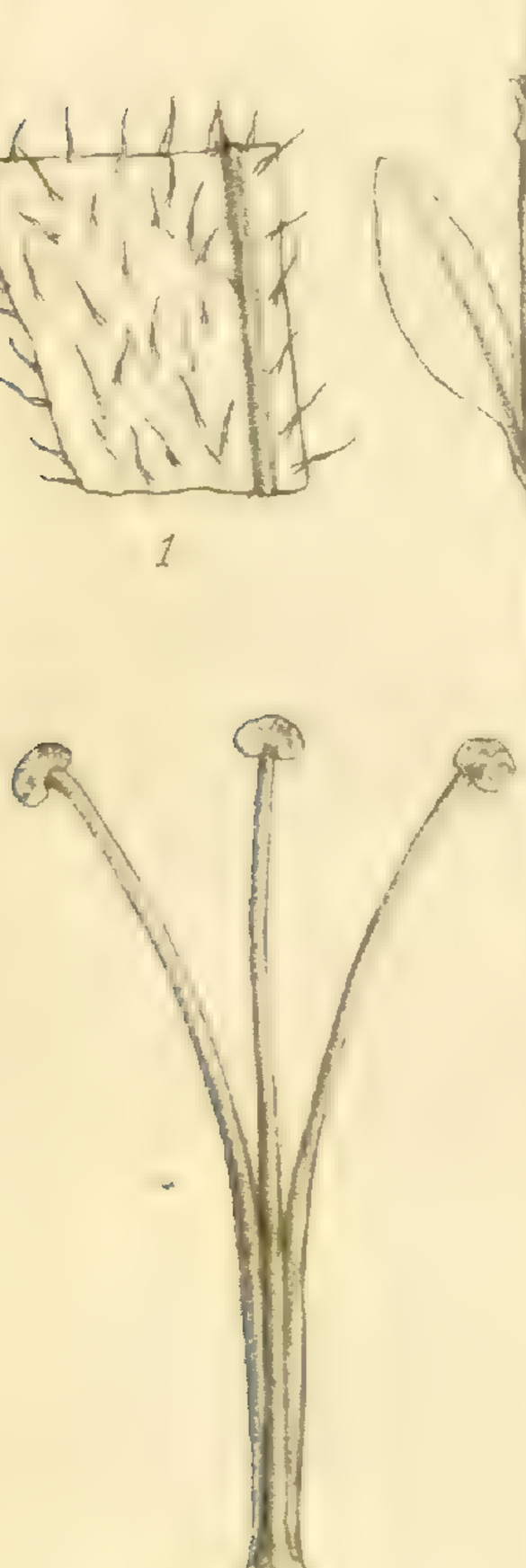

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M.S.del.et lith.

Plate 2593.

ANISADENIA PUBESCENS, *Griff.*

Linaceæ.

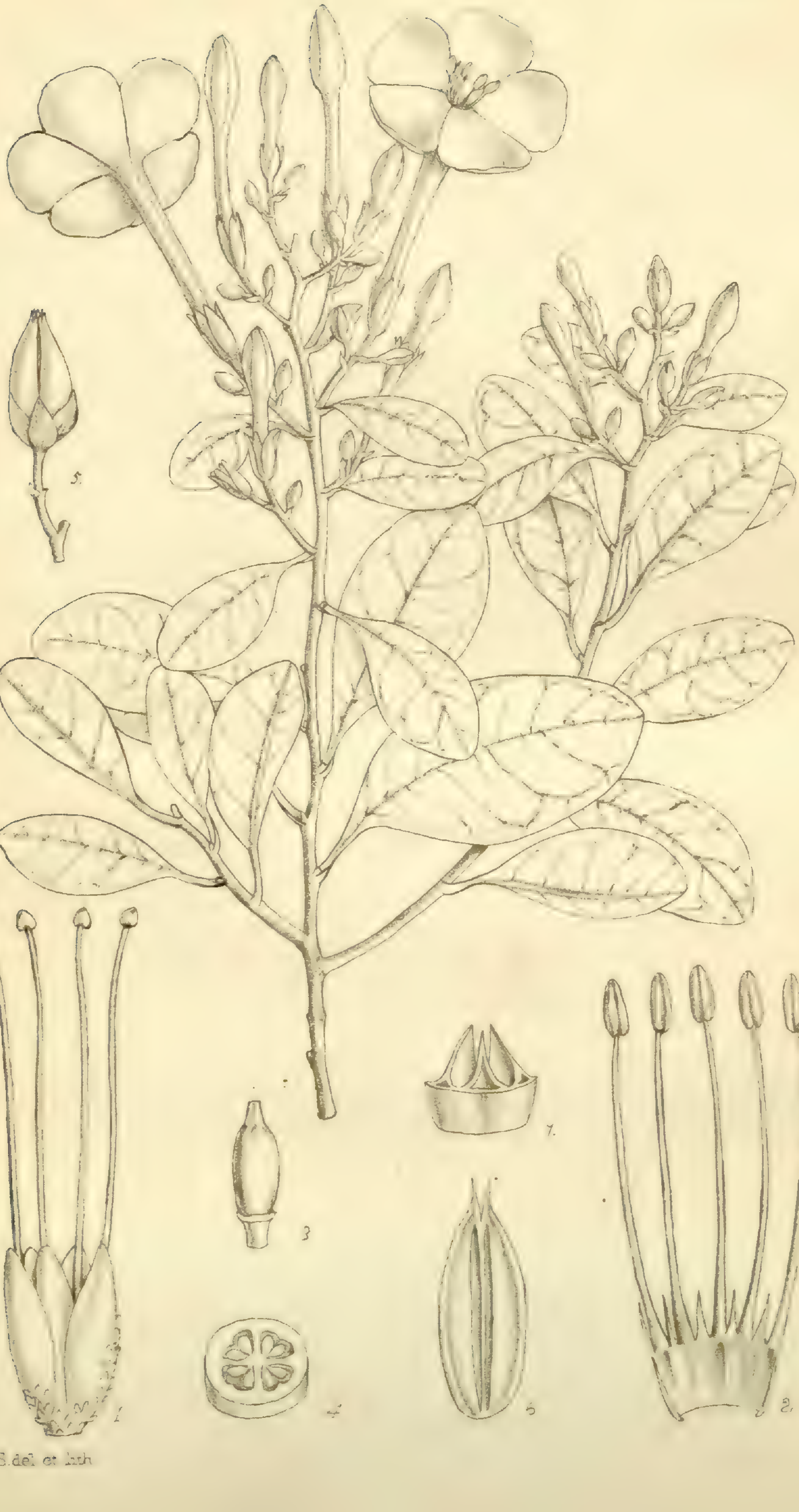
A. pubescens, *Griff. Notul.* iv. p. 535; caulibus puberulis per totam longitudinem foliatis.

Herba perennis, rhizomate gracillimo, caulibus gracillimis erectis sæpius simplicibus 1–1½ ped. altis. *Folia* breviter petiolata, tenuia, fere membranacea, lanceolata, 1–1½ poll. longa, acuta, margine leviter undulata, strigillosa vel setulosa, subtus pallida; stipulæ subscariosæ, ovatæ, acutæ, striatæ, persistentes. *Flores* carnei vel straminei, circiter 9 lin. diametro, in racemos terminales dispositi, brevissime pedicellati. *Sepala* 5, scariosa, lanceolata, acuta, striata, exteriora glandulis longe stipitatis instructa. *Petala* unguiculata, inter se obtegentia, limbo rotundato. *Stamina* 5, vix exserta, filamentis basi connatis cum staminodiis filiformibus alternantibus. *Ovarium* glabrum, 3-loculare, stylis stamina paullo excedentibus, stigmatibus capitatis. *Capsula* mihi ignota.

China: Mengtze, Yunnan, on mossy mountains at 5000 to 6000 ft., *Hancock*, 367; *A. Henry*, 9046.

This elegant little plant was originally discovered by W. Griffith in the Khasia mountains, where various other travellers have since collected it; but I believe this is the first record of its occurrence in China. In general appearance it so closely resembles a *Plumbago* as to deceive even a practised eye, especially in a dried state. It is very inadequately figured in Griffith's *Icones Plantarum Asiaticarum*, t. 593. Mr. Hancock describes the flowers as cream-coloured, and singularly delicate and elegant; whilst Dr. Henry indicates that they are pink. — W. Botting Hemsley.

Fig. 1, portion of the under surface of a leaf; 2, a pair of stipules; 3, a flower with the corolla removed; 4, one of the inner sepals, which are destitute of glands; 5, a portion of the androecium; 6, a pistil; 7, a cross section of the ovary. *All enlarged.*



M S. del. et lith

Plate 2594.

REINWARDTIA SINENSIS, *Hemsl.*

Linaceæ.

R. sinensis, *Hemsl.* (*sp. nov.*); a speciebus hactenus cognitis foliis apice rotundatis, petalorum ungue per totam longitudinem angustissimo subito in laminam patentem expanso differt.

Frutex 3–6-pedalis, undique glaber, dense ramosus, ramulis ultimis lignosis gracillimis. *Folia* breviter petiolata, demum subcoriacea, oblonga vel obovato-oblonga, maxima cum petiolo 2 poll. longa sed sæpius minora, integerrima, apice rotundata, basi cuneata. *Flores* albi, in apicibus ramorum pauci, cymosi, breviter pedicellati. *Sepala* parva, anguste lanceolata, vix acuta. *Petala* unguiculata, unguibus circiter pollicaribus angustissimis fere confluentibus; laminæ rotundatæ, patentes, circiter 6 lin. longæ. *Stamina* 5 breviter exserta, filamentis basi cohærentibus, cum staminodiis dentiformibus alternantibus. *Ovarium* glabrum, 4-loculare, stylis glabris stamina æquantibus, stigmatibus parvis globosis. *Capsula* anguste ovoideo-oblonga, septicide dehiscens, 4-valvis; semina non visa.—W. Botting Hemsley.

China: Mengtze, Yunnan, on rocky mountains at 5000 ft., *A. Henry*, 9081b.

Fig. 1, calyx and pistil; 2, stamens; 3, ovary; 4, cross section of the same; 5, capsule; 6, one carpel; 7, oblique section of the same from the back. *All enlarged.*

M. S. del. et lith

Plate 2595.

ZANTHOXYLUM MULTIFOLIOLATUM, *Hemsl.*

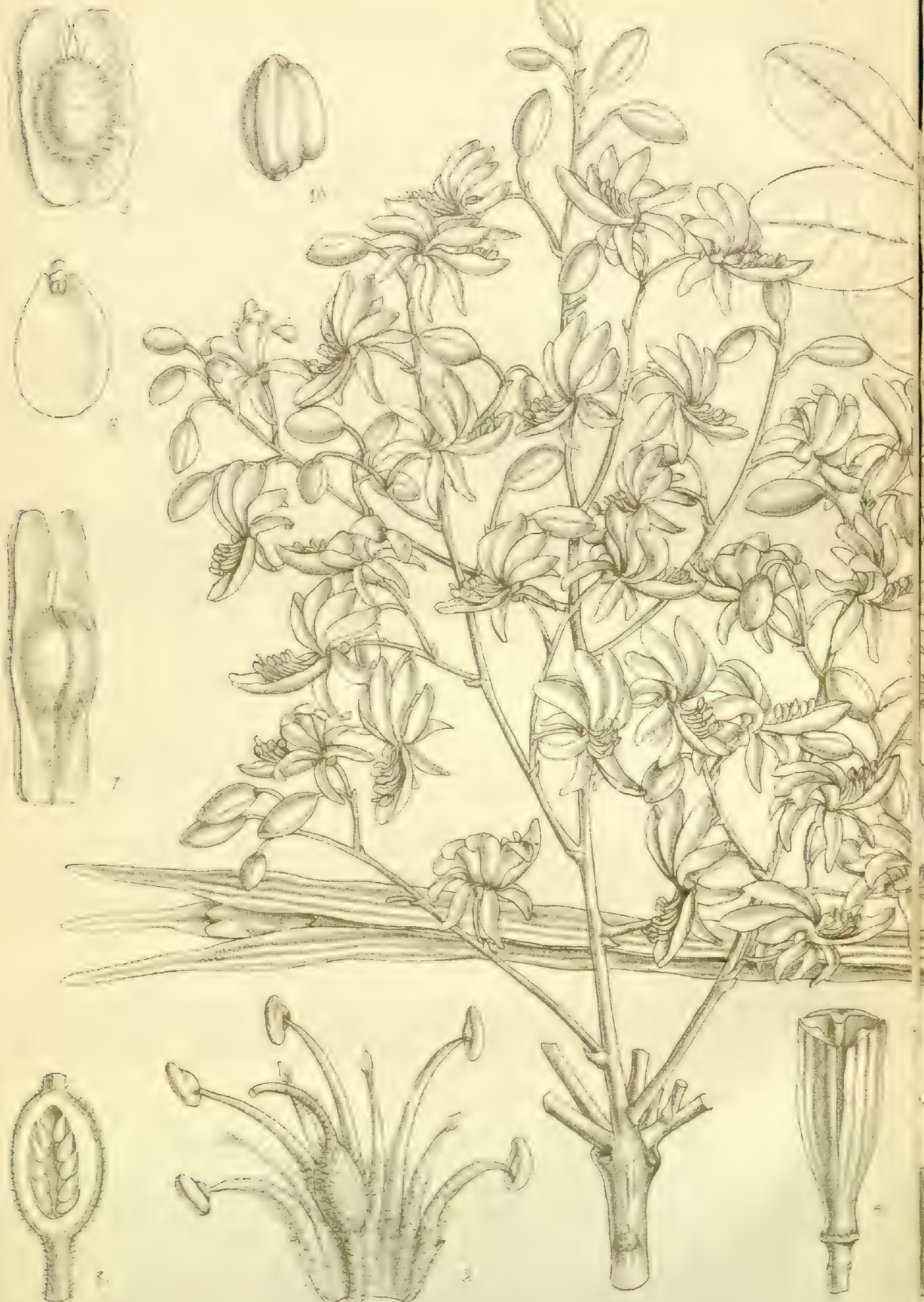
Rutaceæ. Tribe Zanthoxyleæ.

Z. multifoliolatum, *Hemsl.* (*sp. nov.*) ; inter species chinenses foliolis circiter pollicaribus 10–25-jugis insignis.

Frutex vagans vel scandens, aculeis reflexis armatus, undique glaber, ramulis ultimis graciliusculis. *Folia* breviter petiolata usque ad $1\frac{1}{2}$ ped. longa, rhachi gracili aculeata. *Foliola* usque ad 51, sæpius circiter 41, brevissime petiolulata, conferta, coriacea, lanceolata vel oblonga, $\frac{3}{4}$–$1\frac{1}{2}$ poll. longa, marginata, supra medium obscurissime crenata, subtus nigro-punctata, venis immersis inconspicuis. *Flores* minuti, in paniculas parvas axillares et terminales dispositi. *Calycis* lobi ovati. *Petala* ovato-lanceolata, obtusa. *Carpella* sphæroidea, 2 lin. diametro, seminibus nigris nitidis.—W. Botting Hemsley.

China : Mengtze, Yunnan, at 4500 to 6000 ft., *Hancock*, 449 ; *A. Henry*, 9998.

Fig. 1, portion of a leaflet ; 2, a male flower ; 3, a female flower ; 4. pistil ; 5, a fruit ; 6, a seed. *All except* 4 *enlarged.*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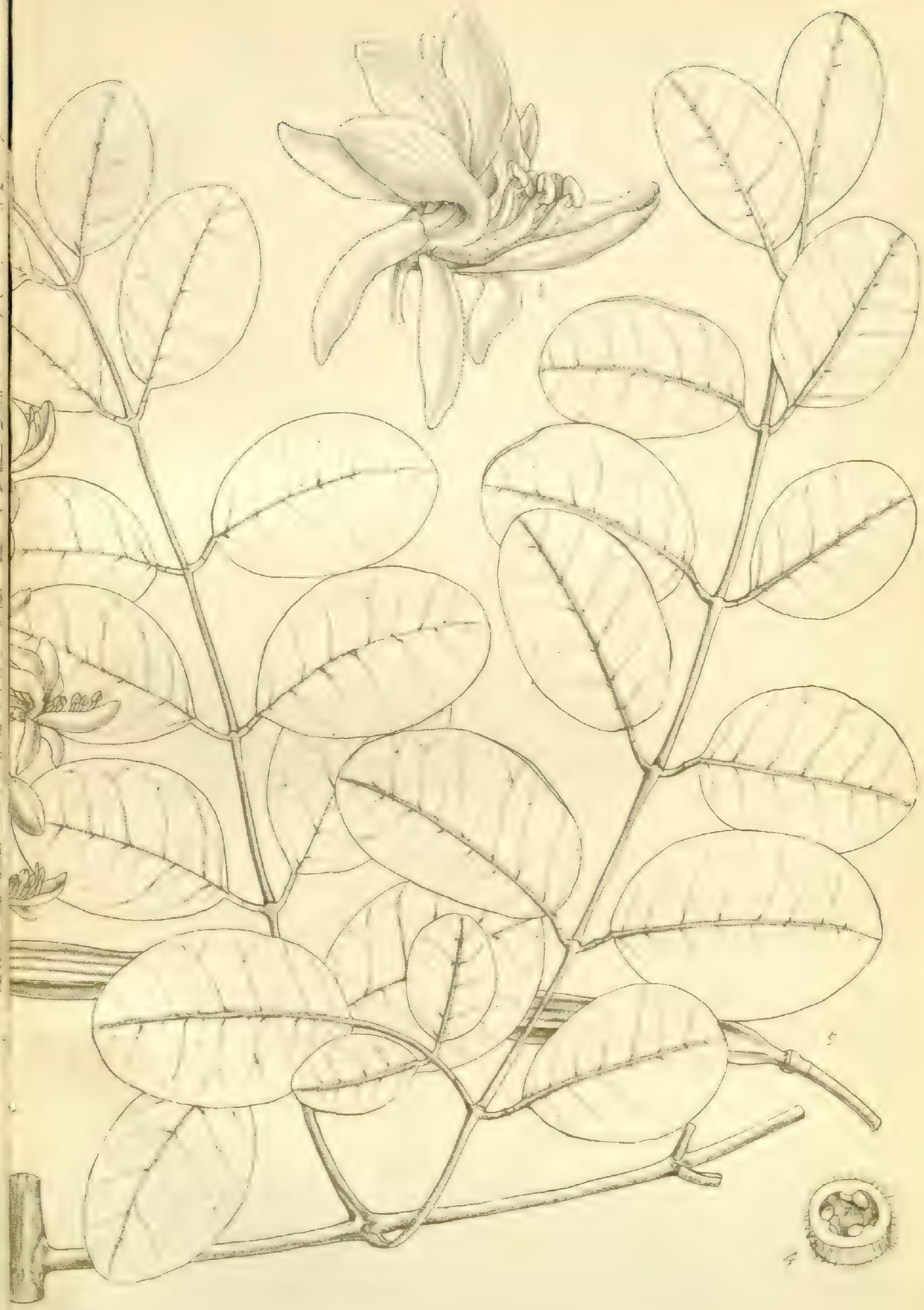
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Plate 2596.

MORINGA CONCANENSIS, *Nimmo.*

Moringeae.

M. concanensis, *Nimmo in Graham, Cat. Bomb. Pl.* p. 43 (nomen tantum), *Dalz. & Gibs. Bomb. Flor.* p. 311 ; affinis *M. pterygospermati*, Gærtn., sed foliis fere semper stricte 2-pinnatis, foliolis majoribus, late ellipticis vel suborbiculatis, paucioribus, capsulis acute triquetris valvis duris distincta.

Arbor inflorescentiis partibusque novellis exceptis glabra. *Folia* bipinnata, rarissime subtripinnata, ad $1\frac{1}{2}$ ped. longa ; rhachis primaria basi incrassata, ut secundariæ, articulata et ad articulationes glandula notata ; juga primaria 5 6, distantia, 4–8 poll. (raro ultra) longa, foliolorum paribus 4–6 ; foliola cum petiolulo gracili 1–4 lin. longo articulata, late elliptica vel suborbicularia, utrinque obtusa vel apice subretusa, raro basi acuta, magnitudine valde varia, plerumque majuscula, 10–16 lin. longa, 7–11 lin. lata, subtus pallida, crassiuscula. *Panicula* laxa, divaricata, circiter semipedalis, tenuissime pubescens ; bracteæ minutæ, caducæ ; pedicelli 4–6 lin. longi, cum flore articulati. *Calyx* tenuissime tomentosus, circiter 4–5 lin. longus segmentis oblongis albidis reflexis. *Petala* flavescentia, roseo-striata, spatulato-oblonga vel oblonga, inferius ad 7 lin. longum. *Capsula* stricta, acute triquetra, inter semina leviter constricta, glauco-rubella, 1–$1\frac{1}{2}$ ped. longa, valvis duris 7–8 lin. latis ; semina albida vel pallide fusca, 3-gona, $\frac{2}{3}$–$\frac{3}{4}$ poll. longa, 3-alata, alis oblongis, $\frac{1}{2}$ poll. longis tenuissimis hyalinis.—*Brandis, For. Flora*, p. 130 ; *Hook. f., Fl. Brit. Ind.* ii. p. 45.

India : Baluchistan, hills of Lus, *Dalzell & Gibson* ; Sind, in the hills, *Stocks*, 584 ; Rajputana, Merwana forests, *Duthie*, 4,584 ; Arawalli hills, *Brandis* ; hills above Oodeypore, *Golan* ; 'Kutthee, S. R.,' *Dr. Hemming.* Concan, *Law* ; in jungles near Pen, Kolaba Distr., *Nimmo* ; Bombay, *Dalzell, Geturne.*

There is no doubt that the specimens quoted above from Baluchistan, Sind, and Rajputana belong to the species described and figured here. In identifying them with the Concan plant, I have followed Dalzell and Gibson, Sir Joseph Hooker, and Sir Dietrich Brandis. I must, however, remark that the Concan plant has rather thinner leaflets and that its fruit is not known.—O. Stapf.

Fig. 1, a flower ; 2, andrœcium and pistil ; 3, vertical section of ovary : 4, cross section of ovary ; 5, a fruit, half natural size ; 6, basal portion, natural size ; 7, a seed, natural size ; 8, an embryo with one cotyledon removed ; 9, a seed of *M. pterygosperma*, natural size ; 10, a seed of *M. aptera*, natural size. *Where not otherwise indicated enlarged.*

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M.S. del. et lith.

Plate 2597.

ARTEMISIA PALLENS, *Wall. ex Bess.*

Compositæ. Tribe Anthemideæ.

A. pallens, *Wall. ex Bess. in Nouv. Mém. Soc. Nat Mosc.* iii. (1834), p. 85; ab omnibus speciebus annuis sectionis Abrotani phyllis capitulorum exterioribus interiora æquantibus vel superantibus et ut intermediis tenuiter hyalino-marginatis cæterum crassis herbaceis latis concavis diversa.

Herba annua vel biennis vel triennis, $\frac{1}{2}$–1 ped. alta, tota lanuginoso-canescens. *Caulis* crassiusculus, ramosus. *Folia* inferiora et intermedia petiolo ad $\frac{2}{3}$ poll. longo suffulta, ambitu rotundata, 2-pinnatisecta, $\frac{3}{4}$–$1\frac{1}{4}$ poll. longa lataque, pinnis utrinque 3, laciniis linearibus obtusis $1\frac{1}{2}$–3 lin. longis, superiora gradatim minora, minus dissecta, brevius petiolata vel sessilia, summa lineari-oblonga vel subspatulata, dentata vel integra. *Capitula* globosa 2–$3\frac{1}{2}$ lin. diametro, in racemos compositos vel paniculas foliatas laxe disposita, summa brevissime inferiora longius pedunculata vel ob folia ramorum sterilia vel substerilia specie pedunculo $\frac{1}{2}$–$\frac{3}{4}$ poll. longo foliato suffulta; phylla circiter 15–20, extima oblonga, obtusa, concava, crassiuscula, herbacea, margine tenuiter hyalino tenuissime lanato-ciliato, intermedia perlata, cucullata, vix vel paulo breviora, flabellatim venosa, margine hyalino latiore, intima minora, multo tenuiora; receptaculum nudum. *Flores* marginales feminei, circiter 1 lin. longi; flores discoidei hermaphroditi, subcampanulati, $\frac{4}{5}$ lin. longi, omnes fertiles, glabri. *Anthera* $\frac{1}{4}$ lin. longæ connectivo in subulam tenuem paulo breviorem producto. — *Wight, Contrib.* p. 20. *DC. Prodr.* vi. p. 120. *Clarke, Compos. Ind.* p. 163. *Hook. f. Fl. Brit. Ind.* iii. p. 329. A. paniculata, *Roxb. Hort. Beng.* p. 61; *Fl. Ind.* iii. p. 418; *Icon. ined., non Lam.*

India: Cultivated in the Bombay and Madras Presidencies, *Wall. Cat.* 3302; *Herb. Wight*, 1463; *Woodrow.*

The affinity of *A. pallens* does not lie with the other annuals of the section *Abrotanum*, but rather with *A. judaica*, Linn., a suffrutescent species of Egypt, Northern Arabia, and Southern Syria, which has a rather similar involucre—although the bracts are smaller and thinner and the outermost comparatively shorter - and very similar corollas and anthers. *A. pallens* is extremely rare in herbaria, and hitherto has been

a very obscure species, which was placed by Sir Joseph Hooker, l.c., amongst the dubia. Roxburgh's *A. paniculata* was referred in *Fl. Brit. Ind.* iii. p. 325 to *A. vulgaris*, probably on the strength of the fact that a specimen from Bombay named thus in the Kew Herbarium is actually *A. vulgaris*. Roxburgh's figure, however, represents exactly the state of *A. pallens*, which was distributed by Wight under 1463. The leaves as drawn agree perfectly with those of Woodrow's specimens, and the involucre shows distinctly the outer bracts longer than the inner. Roxburgh describes the plant as "a very slender, suberect, flaccid, thinly branched under-shrub," which "in three years has only attained to the height of one or two feet." As Woodrow's specimens and also Wallich's (Linnean Society's herbarium) are evidently annual, it would appear that *A. pallens* may, under favourable conditions, become subperennial, though scarcely gaining in size or strength.

There is no evidence that *A. pallens* has been observed in a wild state, and it is very probable that it was introduced into the Dekkan Peninsula, where it is cultivated and used as an offering at certain Hindoo festivals. According to Roxburgh (*Hort. Beng.* p. 61), the specimens grown in the Calcutta Garden, and named by him *A. paniculata*, were communicated by a Mrs. Honeycomb, and supposed to have come from Persia; in his *Flora Indica*, l.c., however, he says: "The native place of this plant I cannot well ascertain. It was introduced into the Botanic Garden from the interior of Bengal," whereby he probably means the Circars, the district where Heyne most likely got the specimens which Wallich quotes under *Artemisia pallens*, 3302 B.—O. Stapf.

Fig. 1, a flower-head; 2, a part of the involucre seen from the inside; 3, 4, and 5, bracts of the involucre—outer, intermediate, and inner; 6, an outer, female flower; 7, an inner, male flower; 8, an anther; 9, upper part of style with stigma. *All enlarged.*

M. S del et lith.

Plate 2598.

FRAXINUS (§ CRNUS) MALACOPHYLLA, *Hemsl.*

Oleaceæ.

F. malacophylla, *Hemsl.* (*sp. nov.*); inter species gerontogeas foliolis crassis mollibus velutino-tomentosis facile distinguitur.

Arbor 15–30-pedalis, diffusa, ramulis floriferis crassiusculis velutino-tomentosis fulvis. *Folia* breviter petiolata, 11–15-foliolata, 6–9 poll. longa, undique molliter tomentosa; foliola sessilia, conferta, crassa, lanceolata, oblonga, lanceolato-oblonga vel oblanceolata, usque ad 5 poll. longa, sed sæpius minora, interdum leviter obliqua, apice valde variabilia, terminale sæpe longius et acuminatum. *Flores* in paniculas densas, tomentosas, quam folia dimidio breviores, in apicibus ramulorum dispositi. *Calyx* parvus, subtruncatus, hirsutus. *Petala* glabra, angusta, margine inflexa. *Stamina* petala vix æquantia. *Capsula* puberula, cum ala spatulata circiter $1\frac{1}{2}$–$1\frac{3}{4}$ poll. longa.

China: Mengtze, Yunnan, at 4000 to 5000 feet, *Hancock*, 311; *A. Henry*, 9970.

This remarkably distinct ash, distinct in its thick, softly tomentose leaves, was first sent to Kew by Mr. W. Hancock, and subsequently by Dr. A. Henry, from the same locality. In foliage it is nearer some of the American species than any of those hitherto discovered in Asia.—W. Botting Hemsley.

Fig. 1, a flower; 2, a pistil; 3, fruit; 4. section of fruit. *All except* 3 *enlarged.*

Pl 2599.

M.S. del. et lith

Plate 2599.

PETROCOSMEA IODIOIDES, *Hemsl.*

Gesneraceæ. Tribe Cyrtandreæ.

P. § **Anisochilus,** *Hemsl.* (*sect. nov.*); corollæ labio postico quam antico multo minore complicato stylum amplectente.

P. (§ **Anisochilus**) **iodioides,** *Hemsl.* (*sp. nov.*); a *P. minore*, Hemsl. foliis cordato-rotundatis differt.

Herba perennis, acaulis, 3-5 poll. alta, scapis seu pedunculis 1–4-floribus quam foliis sæpius paullo brevioribus. *Folia* longe graciliterque petiolata, hirsuta, mollia, cordato-rotundata, 1–1¾ poll. diametro, crenato-dentata. *Pedunculi* atque pedicelli graciles, hirsuti. *Calycis* segmenta oblongo-lanceolata, vix acuta, 2-3 lin. longa, extus hirsuta. *Corollæ* tubus brevissimus, labio postico parvo, emarginato, suberecto stylum exsertum amplectente, antico late trilobato 7-8 lin. diametro, lobis rotundatis. *Stamina* 2, filamentis brevissimis hirsutis. *Ovarium* hirsutum. *Capsula* oblonga, compressa, 3–4 lin. longa, glabrescens.

China: Mengtze, Yunnan, on rocks at 7000 to 9300 feet, *Hancock*, 301; *A. Henry*, 10,259.

This and *P. minor*, Hemsl. (pl. 2600) differ from the previously described species in having a very much reduced, nearly erect, upper lip, which embraces the exserted style.—W. Botting Hemsley.

Fig. 1, three segments of the calyx and pistil; 2, corolla and stamens; 3, cross section of ovary. *All enlarged.*

M. Adel et lith.

Plate 2600.

PETROCOSMEA MINOR, *Hemsl.*

Gesneraceæ. Tribe Cyrtandreæ.

P. (§ **Anisochilus**) **minor**, *Hemsl.* (*sp. nov.*) ; ex affinitate *P. iodiodis*, Hemsl. a qua differt foliis ovato-lanceolatis.

Herba perennis, acaulis, undique pilosa, 3–5 poll. alta, pedunculis gracillimis 1–2-floris folia excedentibus. *Folia* longe graciliterque petiolata, tenuia, mollia, ovato-lanceolata, absque petiolo ½–1 poll. longa, integra vel obscure crenata. *Calycis* segmenta anguste lanceolata, circiter 2 lin. longa. *Corollæ* tubus brevissimus, labio postico parvo emarginato erecto stylum exsertum amplectente, antico trilobato circiter 6 lin. diametro, lobis ovoideis. *Stamina* 2, vix exserta, filamentis crassis hirsutis. *Ovarium* hirsutum. *Capsula* oblonga, 3–4 lin. longa, compressa, hirsuta, seminibus numerosissimis minutissimis.—W. Botting Hemsley.

China : Mengtze, Yunnan, on rocks at 6000 to 7000 feet, *Hancock*, 428 ; *A. Henry*, 9154.

Fig. 1, portion of calyx and pistil ; 2, a corolla and stamens ; 3, a detached stamen ; a cross section of the ovary. *All enlarged.*

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